```
File   1:ERIC 1966-2003/Jul 15
File 121:Brit.Education Index 1976-2003/Q2
File 437:Education Abstracts 1983-2003/Jun
File  34:SciSearch(R) Cited Ref Sci 1990-2003/Jul W2
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
File  98:General Sci Abs/Full-Text 1984-2003/Jun
File  99:Wilson Appl. Sci & Tech Abs 1983-2003/Jun
Set     Items   Description
S1         14   AU='HERMAN TM'
S2         88   AU='HERMAN T'
S3         13   AU='PATRICK MH'
S4          4   AU='GERVASI V'
S5      65085   MODEL?(S)MOLECULE?
S6          0   S1:S4 AND S5


File 348:EUROPEAN PATENTS 1978-2003/Jul W02
File 349:PCT FULLTEXT 1979-2002/UB=20030717,UT=20030710
Set     Items   Description
S1          2   AU='HERMAN TIMOTHY'
S2          6   AU='HERMAN TIMOTHY L'
S3          6   AU='PATRICK MICHAEL'
S4     191290   MOLECULE?
S5          0   S1:S3 AND S4


File 350:Derwent WPIX 1963-2003/UD,UM &UP=200346
File 347:JAPIO Oct 1976-2003/Mar(Updated 030703)
File 371:French Patents 1961-2002/BOPI 200209
Set     Items   Description
S1          6   AU='HERMAN T M'
S2          2   AU='PATRICK M H' OR AU='PATRICK M HOGAN'
S3          6   AU='GERVASI V' OR AU='GERVASI V R'
S4          1   AU='VIKBERG G'
S5         13   AU='HERMAN T'
S6          1   AU='HERMAN T M L'
S7          1   (S1 OR S5 OR S6) AND S2 AND S3 AND S4
S8        835   MODEL?(S)MOLECULE?
S9          0   (S1:S6 AND S8) NOT S7

7/34/1     (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003  Thomson Derwent. All rts. reserv.
014786705
WPI Acc No: 2002-607411/200265
  Model of a molecule having an element and force acting on element, has
  elongated strand extending along path of element and connecting leg
  between strand along path corresponding to vector along which force acts
  on element
Patent Assignee: MILWAUKEE SCHOOL ENG (MILW-N)
Inventor:  GERVASI V R ;  HERMAN T M ;  PATRICK M H ;  VIKBERG G
Number of Countries: 001  Number of Patents: 001
Patent Family:
Patent No     Kind   Date     Applicat No    Kind   Date     Week
US 20020076682  A1  20020620  US 99439324     A   19991112  200265  B
                              US 2001932304   A   20010817
```

Priority Applications (No Type Date): US 2001932304 A 20010817; US 99439324 A 19991112
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
US 20020076682 A1 42 G09B-023/26 CIP of application US 99439324
Abstract (Basic): US 20020076682 A1

NOVELTY - A model of a molecule with 1st and 2nd elements (E1 and 2), and a force delineating three-dimensional path, acting on E1 and 2 along a vector, comprising 1st and 2nd elongated strands (ES1,ES2) extending along a 1st and 2nd path corresponding to E1 and 2, respectively, and connecting leg between ES1 and 2 along a 3rd path corresponding to vector along which the force acts on E1 and 2, is new.

DETAILED DESCRIPTION - A model of a molecule (MM) having E1, E2 in spaced relation from E1, and a force delineating a three-dimensional path, acting on E1 and E2 along a vector, comprises ES1 extending along a first path corresponding to E1, ES2 extending along a second path spaced from the first path and corresponding to E2, and a connecting leg extending between ES1 and ES2 along a third path corresponding to the vector along which the force acts on E1 and E2.

INDEPENDENT CLAIMS are also included for the following:

(1) a macro-molecule construction kit comprises several amino acid backbone units, each amino acid backbone unit represents an assembly of atoms, several hydrogen bond units coupleable to amino acid backbone units, and several side chain units coupleable to each amino acid backbone units; and

(2) a nucleic acid construction kit, comprises several base units, each one of the base units representing an assembly of atoms, several hydrogen bond units coupleable between each base unit, several sugar units representing an assembly of atoms and coupleable to each base units, and several phosphate units representing an assembly of atoms and coupleable to each sugar units.

USE - MM is useful for studying the three-dimensional model of a complex structure and its function that assist in gaining a more complete understanding of the functional consequences of the three dimensional structure. MM is also useful for representing a configuration of a variety of complex structures, including both microscopic structures and structures of a large scale e.g., protein.

ADVANTAGE - MM is easy to use, affordable and is an accurate three-dimensional model of a complex structure.

pp; 42 DwgNo 0/33

Technology Focus:

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Model: In MM, ES1, ES2, and the connecting legs are made of a single piece of material. The model is fabricated using a solid free form fabrication method which is one of sterolithography, selective laser sintering, fused deposition modeling, and laminated object manufacturing. The molecule includes several elements and where ES1 corresponds to a first subset of number of elements, where ES2 corresponds to a second subset of a number of elements, and where a force acts on at least two of the elements. The elements are alpha carbons and the force acting on at least two of the elements is a hydrogen bond between at least two of the alpha carbons. The molecule includes a side chain and the model includes a branch representing the side chain and is coupled to at least one of ES1 and ES2. The molecule includes a substrate and the model includes a spherical member representing the substrate and coupled to at least one of ES1 and ES2. At least one of ES1, ES2, the

connecting leg, the branch, and the spherical member are color-coded according to an atomic color scheme which is Corey, Pauling, Kultin color scheme. The atomic color scheme includes at least one of gray representing carbon, white representing hydrogen, red representing oxygen, blue representing nitrogen, orange representing iron or phosphorus, and yellow representing sulfur. The model includes at least two segments and the segments have respective ends having engagement surfaces affording interconnection of the two segments. One of the two segments includes a male slide connector engagement surface and the other segments includes a female slide connector engagement surface. The male slide connector engagement surface and the female slide connector engagement surface are adapted to be interconnected in a single orientation. The engagement surfaces are joined with a deformable piece of material, allowing the segments to move with respect to one another, while preventing the segments from completely separating from one another. The molecule is preferably a protein such as adenosine tri-phosphate-ase, beta-globin, calmodulin, chymotrypsin, green fluorescent protein, human immunodeficiency virus protease, lysozyme, myosin, p53, zif268, zinc finger, major histocompatibility complex, immunoglobulin, lac repressor or beta-galactosidase.

Extension Abstract:

WIDER DISCLOSURE - Making a three-dimensional model of a molecule is also disclosed.

Derwent Class: B04; D16; J04; P85

International Patent Class (Main): G09B-023/26

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File 148:Gale Group Trade & Industry DB 1976-2003/Jul 22
File  88:Gale Group Business A.R.T.S. 1976-2003/Jul 15
File  16:Gale Group PROMT(R) 1990-2003/Jul 22
File 621:Gale Group New Prod.Annou.(R) 1985-2003/Jul 22
File 484:Periodical Abs Plustext 1986-2003/Jul W2
File 636:Gale Group Newsletter DB(TM) 1987-2003/Jul 22
File 649:Gale Group Newswire ASAP(TM) 2003/Jul 15
File  47:Gale Group Magazine DB(TM) 1959-2003/Jul 14
File 149:TGG Health&Wellness DB(SM) 1976-2003/Jul W1
File 810:Business Wire 1986-1999/Feb 28
File 160:Gale Group PROMT(R) 1972-1989
File  15:ABI/Inform(R) 1971-2003/Jul 19
File 613:PR Newswire 1999-2003/Jul 22
File 813:PR Newswire 1987-1999/Apr 30
File  95:TEME-Technology & Management 1989-2003/Jul W1
File   9:Business & Industry(R) Jul/1994-2003/Jul 21
Set     Items   Description
S1      12594   MOLECUL?(3N)MODEL????
S2    5580947   TEACH??? OR EDUCAT? OR LEARN???
S3      91959   AMINO()ACID? ?
S4    1442018   PHYSICAL
S5   17242576   3 OR THREE
S6    6023352   D OR DIMENSIONAL
S7     313957   S5()S6
S8     281611   3D
S9     547421   S7:S8
S10         0   S4(3W)S9(3W)S1
S11       704   S4 AND S9 AND S1
S12        46   S4(S)S9(S)S1
S13         7   S12/2000:2003
S14        39   S12 NOT S13
S15        26   RD (unique items)
S16        26   Sort S15/ALL/PD,D
S17       363   S1(S)S3
S18        44   S9(S)S17
S19        40   S18 NOT S12
S20        26   RD (unique items)
S21         6   S20/2000:2003
S22        20   S20 NOT S21
S23        20   Sort S22/ALL/PD,D
S24        20   S1(3N)S3
S25        19   S24 NOT (S12 OR S18)
S26        15   RD (unique items)
S27         6   S26/2000:2003
S28         9   S26 NOT S27
S29         9   Sort S28/ALL/PD,D

16/8/1     (Item 1 from file: 88)
DIALOG(R)File  88:(c) 2003 The Gale Group. All rts. reserv.
05148121     SUPPLIER NUMBER: 55160309
The use of molecular modeling and VSEPR theory in the undergraduate
  curriculum to predict the three-dimensional structure of
  molecules.(valence shell electron pair repulsion)(ST)
July, 1999
 COMPANY NAMES:  Oxford Molecular Group PLC--Products
 DESCRIPTORS:  Chemistry--Study and teaching; Molecules--Models; Simulation
```

methods--Computer programs
GEOGRPAHIC CODES/NAMES: 1USA United States

16/8/2 (Item 2 from file: 484)
DIALOG(R)File 484:(c) 2003 ProQuest. All rts. reserv.
04350322 (USE FORMAT 7 OR 9 FOR FULLTEXT)
An integrated molecular modeling and melting point experiment for the organic chemistry laboratory
Jul 1999
DESCRIPTORS: Experiments; Science education; Organic chemistry; Molecular biology; Computer based modeling
SPECIAL FEATURES: References Table

16/8/3 (Item 3 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
05101441 SUPPLIER NUMBER: 54648646
The correlation of physical properties of organic molecules with computed molecular surface areas.
May, 1999
DESCRIPTORS: Molecules--Models; Chemistry--Study and teaching; Surfaces--Areas and volumes
SPECIAL FEATURES: illustration; Graph

16/8/4 (Item 4 from file: 16)
DIALOG(R)File 16:(c) 2003 The Gale Group. All rts. reserv.
06304078 Supplier Number: 54507029 (USE FORMAT 7 FOR FULLTEXT)
CombiChem Screens Chiral Templates.
April, 1999
Word Count: 1247
PUBLISHER NAME: Business Communications Company, Inc.
COMPANY NAMES: *CombiChem Inc.; Chirotech Technology; ChiroChem Discovery Services
EVENT NAMES: *149 (Joint ventures); 120 (Organizational history)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *2830000 (Drugs & Pharmaceuticals)
INDUSTRY NAMES: BUSN (Any type of business); CHEM (Chemicals, Plastics and Rubber)
NAICS CODES: 3254 (Pharmaceutical and Medicine Manufacturing)
SPECIAL FEATURES: INDUSTRY; COMPANY

16/8/5 (Item 5 from file: 484)
DIALOG(R)File 484:(c) 2003 ProQuest. All rts. reserv.
04152975 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Size matters again
Feb 22, 1999
DESCRIPTORS: Supercomputers; Product development

16/8/7 (Item 7 from file: 636)
DIALOG(R)File 636:(c) 2003 The Gale Group. All rts. reserv.
03683070 Supplier Number: 47946397 (USE FORMAT 7 FOR FULLTEXT)
CONFERENCE HIGHLIGHTS
Sept 1, 1997
Word Count: 1265
PUBLISHER NAME: CAD/CAM Publishing, Inc.
INDUSTRY NAMES: CMPT (Computers and Office Automation)

16/8/8 (Item 8 from file: 16)
DIALOG(R)File 16:(c) 2003 The Gale Group. All rts. reserv.
05129958 Supplier Number: 47831748 (USE FORMAT 7 FOR FULLTEXT)
StereoGraphics Launches Monitor Z-Screen, Delivers Most Advanced Stereoscopic 3D Visualization Overlay for Workstation Displays
July 14, 1997
Word Count: 845
PUBLISHER NAME: Various
COMPANY NAMES: *StereoGraphics Inc.
EVENT NAMES: *336 (Product introduction)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *3679580 (Display Devices)
INDUSTRY NAMES: BUS (Business, General); BUSN (Any type of business)
NAICS CODES: 334419 (Other Electronic Component Manufacturing)
TRADE NAMES: Monitor Z-Screen; Z-Screen
SPECIAL FEATURES: COMPANY

16/8/10 (Item 10 from file: 484)
DIALOG(R)File 484:(c) 2003 ProQuest. All rts. reserv.
02941434 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Structure in thin and ultrathin spin-cast polymer films
Aug 16, 1996
DESCRIPTORS: Molecules; Polymers; Chemical engineering
SPECIAL FEATURES: References Table Graph

16/8/12 (Item 12 from file: 484)
DIALOG(R)File 484:(c) 2003 ProQuest. All rts. reserv.
02122271 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Multimedia chemistry lectures
Sep 1994
DESCRIPTORS: Chemistry; Science education; Multimedia computer applications
SPECIAL FEATURES: References Photograph

16/8/14 (Item 14 from file: 16)
DIALOG(R)File 16:(c) 2003 The Gale Group. All rts. reserv.
02956824 Supplier Number: 44002342
DATA IN THE VIDEO AGE
August, 1993
PUBLISHER NAME: McGraw-Hill, Inc.
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *3573000 (Computers & Peripherals); 7372440 (Graphics Software)
INDUSTRY NAMES: BUSN (Any type of business); CHEM (Chemicals, Plastics and Rubber)
NAICS CODES: 334111 (Electronic Computer Manufacturing); 51121 (Software Publishers)
SPECIAL FEATURES: LOB

16/8/17 (Item 17 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
02931903 SUPPLIER NUMBER: 12561265
The location of bound lipid in the lipovitellin complex.
July 31, 1992
WORD COUNT: 1979 LINE COUNT: 00180

DESCRIPTORS: Lipoproteins--Research; Proteins--Structure; Lipid research --Reports
SPECIAL FEATURES: illustration; table; chart; graph

16/8/18 (Item 18 from file: 636)
DIALOG(R)File 636:(c) 2003 The Gale Group. All rts. reserv.
01720954 Supplier Number: 42797683 (USE FORMAT 7 FOR FULLTEXT)
CCDC AND TRIPOS SIGN PACT FOR DATA ACCESS AND STORAGE
March, 1992
Word Count: 737
PUBLISHER NAME: Worldwide Videotex
INDUSTRY NAMES: BUSN (Any type of business); CMPT (Computers and Office Automation); INTL (Business, International)

16/8/19 (Item 19 from file: 149)
DIALOG(R)File 149:(c) 2003 The Gale Group. All rts. reserv.
01299319 SUPPLIER NUMBER: 10927429 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Hyperactivity: whose problem? Instead of giving mixed signals to our restless youth, we need to listen to the message that they are giving us.
1991
WORD COUNT: 2126 LINE COUNT: 00213
SPECIAL FEATURES: illustration; photograph
DESCRIPTORS: Hyperactive children--Education; Attention deficit-hyperactivity disorder--Analysis

16/8/20 (Item 20 from file: 148)
DIALOG(R)File 148:(c)2003 The Gale Group. All rts. reserv.
04803750 SUPPLIER NUMBER: 09312627 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Computer package puts chemistry at your fingertips. (reactivity modeling system)
August, 1990
WORD COUNT: 1455 LINE COUNT: 00122
SPECIAL FEATURES: illustration; photograph
INDUSTRY CODES/NAMES: ENG Engineering and Manufacturing
DESCRIPTORS: Three-dimensional display systems--Programming; Chemical reactions--Research; Computer simulation--Computer programs; Chemical research--Computer programs
SIC CODES: 7372 Prepackaged software; 8733 Noncommercial research organizations; 2800 CHEMICALS AND ALLIED PRODUCTS
TRADE NAMES: CAChe (Computer graphics software)--Usage

16/8/21 (Item 21 from file: 15)
DIALOG(R)File 15:(c) 2003 ProQuest Info&Learning. All rts. reserv.
00459626 89-31413
GUI Benefits CAE Design, Test LENGTH: 2 Pages
Jul 1989
DESCRIPTORS: CAE; Computer graphics; Interfaces; Tests
CLASSIFICATION CODES: 5240 (CN=Software & systems)

16/8/22 (Item 22 from file: 160)
DIALOG(R)File 160:(c) 1999 The Gale Group. All rts. reserv.
02179215
New computational chemistry systems debut
May 1, 1989
COMPANY: *Tektronix DUNS: 00-902-0231 TICKER: TEK (NYSE) CUSIP: 879131
PRODUCT: *Science & Engineering EDP (3573070)

EVENT: *Product Design & Development (33)
COUNTRY: *United States (1USA)

16/8/24 (Item 24 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
02078356 SUPPLIER NUMBER: 06543348
The discovery of crown ethers.
July 29, 1988
WORD COUNT: 2022 LINE COUNT: 00203
DESCRIPTORS: Ethers--Research; Chemistry, Organic--Research; Chelates--Research
SPECIAL FEATURES: illustration; chart; table; graph

16/8/25 (Item 25 from file: 148)
DIALOG(R)File 148:(c)2003 The Gale Group. All rts. reserv.
03523486 SUPPLIER NUMBER: 06762063 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Color flat-panel displays strut their stuff at SID. (Society for Information Display Symposium)
April 28, 1988
WORD COUNT: 2619 LINE COUNT: 00201
SPECIAL FEATURES: illustration; photograph; chart
INDUSTRY CODES/NAMES: ELEC Electronics; CMPT Computers and Office Automation
DESCRIPTORS: Society for Information Display--Conferences, meetings, seminars, etc.; Information display systems--Marketing; Video monitors--Innovations
SIC CODES: 3812 Search and navigation equipment

16/8/26 (Item 26 from file: 160)
DIALOG(R)File 160:(c) 1999 The Gale Group. All rts. reserv.
01246520
Hypercube emerges as new architecture.
September 2, 1985
PRODUCT: *Digital Computers, Super (3573111)
EVENT: *Product Design & Development (33)
COUNTRY: *United States (1USA)

16/3,AB,K/6 (Item 6 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2003 The Gale Group. All rts. reserv.
10329773 SUPPLIER NUMBER: 20923967 (USE FORMAT 7 OR 9 FOR FULL TEXT)
StereoGraphics Delivers Industry's First Stereo3D Visualization Solution Designed Specifically for Windows NT.
Business Wire, p7210022
July 21, 1998
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 709 LINE COUNT: 00068
... scientific applications."
StereoGraphics CrystalEyes is a lightweight, wireless eyewear system that delivers high-definition, stereoscopic **3D** images in conjunction with compatible software and standard workstation displays. Using CrystalEyes reduces the need for **physical** prototypes, saving time and development costs. The product has been in use for over a...
...as General Motors, Ford, Boeing and NASA. Many common software applications used in mechanical CAD, **molecular modeling** , GIS and medical imaging support StereoGraphics' CrystalEyes on all major UNIX

platforms and Windows NT...

16/3,AB,K/9 (Item 9 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

04833877 Supplier Number: 47112720
StereoGraphics and EDS Unigraphics Revolutionize 3D Design and Development with CrystalEyes Stereoscopic Support in Unigraphics V12
News Release, pN/A
Feb 10, 1997
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 745
TEXT:
Natural **3D** -vision and virtual prototyping speeds product design and reduces time to market for Unigraphics V12...
...using CrystalEyes SAN RAFAEL, CALIF., February 10, 1997 - StereoGraphics, the world's leading developer of **3D** viewing peripherals, and EDS Unigraphics have announced a partnership to deliver stereoscopic **3D** visualization support to Unigraphics' customers. The first result of that partnership is the release of Unigraphics' V12 design and modeling software with built-in support for StereoGraphics CrystaIEyes stereoscopic **3D** eyewear. The combination of StereoGraphics CrystalEyes and Unigraphics V12 will significantly speed the **3D** design process and provide virtual prototyping capabilities to all Unigraphics users. "In today's competitive...
...by allowing designers to view their work in a natural and realistic way -- using stereoscopic **3D** . The combination of CrystaIEyes and Unigraphics V12 delivers on the need to reduce design costs...
...designintensive organizations." StereoGraphics CrystalEyes is a lightweight, wireless eyewear system that delivers high-definition, stereoscopic **3D** images in conjunction with compatible software and standard workstation displays. CrystalEyes allows professionals dealing with...
...and analyze information more quickly and effectively. Many common software applications used in mechanical CAD, **molecular modeling** , GIS/mapping and medical imaging support StereoGraphics CrystalEyes on all major UNIX platforms and Windows...
...views of their models with accurate height, width and depth, eliminating costly and time-consuming **physical** prototyping. "Because of customer demand and the superior design Capabilities it lends, implementing support for...
...working with their models in a more natural environment." Unigraphics V12 is an assembly-oriented **3D** design and drafting software product that incorporates a flexible hybrid approach to geometric construction. The...
...combination of these three design disciplines. Now, Unigraphics users can visualize models in true stereoscopic **3D** using StereoGraphics CrystalEyes, regardless of the models' design origins. Unigraphics V12 supports Sun, SGI, HP...
...founded in 1980 to provide a variety of products that enable the realistic viewing of **three - dimensional** video and computer images. StereoGraphics products utilize stereoscopic human depth-perception to deliver natural looking **3D** in high-resolution for a variety of professional workstation and consumer applications. CrystalEyes, StereoGraphics' flagship product, has an installed base of over 50,000 users in scientific visualization, GIS/mapping, **molecular modeling** , CAD/CAM, and commercial presentation. With SimulEyes, StereoGraphics offers

affordable **3D** eyewear for the PC gaming and multimedia markets. StereoGraphics' address is 2171 E. Francisco Blvd...

16/3,AB,K/11 (Item 11 from file: 88)
DIALOG(R)File 88:Gale Group Business A.R.T.S.

03382802 SUPPLIER NUMBER: 15941578
Modeling atoms & molecules: a new lesson for upper elementary & middle school students. (studying biology)
Schwaner, Terry D.; Petty, John T.; Schwaner, Lila A.
The American Biology Teacher, v56, n8, p488(4)
Nov-Dec, 1994
ISSN: 0002-7685 LANGUAGE: English RECORD TYPE: Abstract
ABSTRACT: **Three - dimensional** , dynamic **models** of atoms and **molecules** using balloons and BBs can be presented in the upper elementary and middle school science classrooms to prepare students for high school biology. The demonstration involves building atoms with active electrons by placing BBs in balloons and spinning them. The models can help students visualize atoms and molecules' **physical** and kinetic properties as well as their kinetic energies and how these elements relate to matter states. Demonstration procedures and study questions with answers are included.

16/3,AB,K/13 (Item 13 from file: 88)
DIALOG(R)File 88:Gale Group Business A.R.T.S.

03129760 SUPPLIER NUMBER: 14569044
The generation and use of three-dimensional structures. (Computer-Assisted Mechanistic Evaluation of Organic Reaction, part 22)
Gothe, Scott A.; Helson, Harold E.; Houdaverdis, Iordanis; Lagerstedt, Ingvar; Sinclair, Shenna; Jorgensen, William L.
Journal of Organic Chemistry, v58, n19, p5081(14)
Sept 10, 1993
ISSN: 0022-3263 LANGUAGE: English RECORD TYPE: Abstract
ABSTRACT: CAMEO, an interactive computer program, allows the introduction of **three - dimensional** chemical geometries which are formed and studied. Spatial observations, previously derived from **physical molecular models** , are obtained through this program. CAMEO exhibits an interaction study period which yields the same information. Mechanistic principles are formed in keeping with the requirements of the structure and availability of the molecule. Reactivity can be hypothesized with the participation of the structure of the molecule and the details of the specificity of the form.

16/3,AB,K/15 (Item 15 from file: 88)
DIALOG(R)File 88:Gale Group Business A.R.T.S.

02945773 SUPPLIER NUMBER: 12939689
See-and-touch 3-D molecule. (complex molecule models give structure to research) (Brief Article)
Science News, v142, n21, p342(1)
Nov 21, 1992
CODEN: SCNEB DOCUMENT TYPE: Brief Article ISSN: 0036-8423
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 93 LINE COUNT: 00010
TEXT:
Seeing may aid believing, but feeling aids understanding, especially

when it comes to **modeling** complex **molecules** like this binding pocket of a mutant antibody. Michael Pique and Jim Emery of the...
...p.72) to build this true-to-life, copyrighted model. In the eight-hour-long **3 - D** printing process, a precisely aimed laser solidifies liquid plastic at specified coordinates. "It's an easy way to develop a **physical** intuition of what a molecule is like," says Sylvia J. Spengler, a biophysicist at the...

16/3,AB,K/16 (Item 16 from file: 149)
DIALOG(R)File 149:TGG Health&Wellness DB(SM)
(c) 2003 The Gale Group. All rts. reserv.
01376662 SUPPLIER NUMBER: 14017918 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Molecular modeling: computer-assisted innovations in drug design. (Doctor Robert Pearlstein explains the technology; includes glossary) (Interview)
Wilson, Eve J.
Alcohol Health & Research World, v16, n4, p293(4)
Fall, 1992
DOCUMENT TYPE: Interview PUBLICATION FORMAT: Magazine/Journal ISSN: 0090-838X LANGUAGE: English RECORD TYPE: Fulltext; Abstract
TARGET AUDIENCE: Academic; Professional
WORD COUNT: 3055 LINE COUNT: 00260
ABSTRACT: Pearlstein explains what molecular modeling is and describes its applications in drug development and alcoholism treatment. He says the main advantage to using the technology is its predictive value and the ability to graphically display molecular properties.
Q: What is **molecular modeling** ?
A: Simply put, **molecular modeling** is the process of simulating or predicting **three - dimensional** structures and other **physical** and chemical properties of molecules using computational methods. All **molecular modeling** methods require the use of data derived from experimental measurements on known **molecules** . **Molecular modeling** provides a mathematical format for generalizing experimental information, allowing measurements from known systems to be...

16/3,AB,K/23 (Item 23 from file: 160)
DIALOG(R)File 160:Gale Group PROMT(R)
(c) 1999 The Gale Group. All rts. reserv.
02241781
MOLECULAR SIMULATIONS, INC. LAUNCHES 3-D POLYMER SIMULATOR
News Release April 9, 1989 p. 1
Molecular Simulations, Inc. today announced the commercial availability of POLYGRAF (TM), its integrated **molecular modeling** and simulation software developed specifically for the polymer industry. POLYGRAF combines computational chemistry and **3 - D** graphics to simulate the behavior of complex polymer molecules. It radically reduces the need to perform multiple trial-and-error laboratory experiments typically required to develop new substances. POLYGRAF has been extensively beta-tested during the past year at key companies engaged in polymer research, such as Allied-Signal, Eastman Kodak, B. F. Goodrich, and General Electric. Scientists from these test sites have had direct interaction with the Molecular Simulations, Inc. development team to help refine the scope and include those features in POLYGRAF to provide an advanced design tool having maximum impact in the polymer research environment. POLYGRAF employs a wide range of molecular mechanics capabilities, specialized builders for small molecules and polymers, energy minimization, conformational searching, animation of dynamic trajectories, analysis of structural

features, calculation of **physical** properties and constant stress dynamics, to enable chemists to interactively build complex new substances (of up to 20,000 atoms) and subject them to various stresses such as heat or pressure - all on the computer.
Full text available on PTS New Product Announcements.

23/8/1 (Item 1 from file: 636)
DIALOG(R)File 636:(c) 2003 The Gale Group. All rts. reserv.
04511583 Supplier Number: 58269486 (USE FORMAT 7 FOR FULLTEXT)
-US DEPT OF HHS: 'Snap shot' captures key cancer-search and destroy enzyme.
Dec 15, 1999
Word Count: 844
PUBLISHER NAME: M2 Communications Ltd.
INDUSTRY NAMES: BUSN (Any type of business); INTL (Business, International)

23/8/2 (Item 2 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
05242989 SUPPLIER NUMBER: 57621544
NMR structure of the complex between the zinc finger protein NCp10 of Moloney murine leukemia virus and the single-stranded pentanucleotide d(ACGCC): comparison with HIV-NCp7 complexes.
Oct 5, 1999
DESCRIPTORS: Amino acids--Research; Bacterial proteins--Research; Mouse leukemia viruses--Research

23/8/3 (Item 3 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
05215061 SUPPLIER NUMBER: 56330800
Competitive binding in magnesium coordination chemistry: water versus ligands of biological interest.
August 25, 1999
DESCRIPTORS: Density functionals--Usage; Ligand binding (Biochemistry)--Research; Ligands (Biochemistry)--Research; Magnesium--Research; Water--Research

23/8/7 (Item 7 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
04826432 SUPPLIER NUMBER: 20871771
Molecular cloning and characterization of an invertebrate cellular retinoic acid binding protein.
June 9, 1998
DESCRIPTORS: Cloning--Research; Tretinoin--Research; Carrier proteins--Research; Invertebrates--Genetic aspects
SPECIAL FEATURES: photograph; table; graph; illustration

23/8/8 (Item 8 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
04135471 SUPPLIER NUMBER: 18949469
Tricorn protease - the core of a modular proteolytic system.
Nov 22, 1996
WORD COUNT: 3090 LINE COUNT: 00244
DESCRIPTORS: Proteolytic enzymes--Research
SPECIAL FEATURES: illustration; photograph; table; chart; graph

23/8/9 (Item 9 from file: 16)

DIALOG(R)File 16:(c) 2003 The Gale Group. All rts. reserv.
04657739 Supplier Number: 46853552 (USE FORMAT 7 FOR FULLTEXT)
ANTIBODIES:Mouse or Man: the Tide Shifts
Nov 1, 1996
Word Count: 544
PUBLISHER NAME: Business Communications Company, Inc.
COMPANY NAMES: *Celltech Ltd.; ImmunoGen Inc.
EVENT NAMES: *310 (Science & research); 370 (Patents & copyrights)
GEOGRAPHIC NAMES: *1USA (United States); 4EUUK (United Kingdom)
PRODUCT NAMES: *2831230 (Antibodies for Human Use)
INDUSTRY NAMES: BIO (Biotechnology); BUSN (Any type of business)
NAICS CODES: 325412 (Pharmaceutical Preparation Manufacturing)
TICKER SYMBOLS: IMGN
SPECIAL FEATURES: COMPANY

23/8/10 (Item 10 from file: 16)
DIALOG(R)File 16:(c) 2003 The Gale Group. All rts. reserv.
04643874 Supplier Number: 46832341 (USE FORMAT 7 FOR FULLTEXT)
Antisense Technology--Antibody Humanization Technology Used To Develop Anti-Cancer Compounds
Oct 28, 1996
Word Count: 574
PUBLISHER NAME: Charles W. Henderson
COMPANY NAMES: *ImmunoGen Inc.
EVENT NAMES: *310 (Science & research)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *8521215 (Immunology)
INDUSTRY NAMES: BUSN (Any type of business); HLTH (Healthcare - Medical and Health)
NAICS CODES: 54171 (Research and Development in the Physical, Engineering, and Life Sciences)
TICKER SYMBOLS: IMGN
SPECIAL FEATURES: COMPANY

23/8/11 (Item 11 from file: 149)
DIALOG(R)File 149:(c) 2003 The Gale Group. All rts. reserv.
01645348 SUPPLIER NUMBER: 18817952 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Antibody humanization technology used to develop anti-cancer compounds.
1996
WORD COUNT: 579 LINE COUNT: 00055
DESCRIPTORS: Antibodies--Therapeutic use; Antineoplastic agents--Research

23/8/12 (Item 12 from file: 148)
DIALOG(R)File 148:(c)2003 The Gale Group. All rts. reserv.
09023231 SUPPLIER NUMBER: 18763006 (USE FORMAT 7 OR 9 FOR FULL TEXT)
ImmunoGen Studies Support Use of Its Antibody Humanization Technology in the Development of New Targeted Anti-Cancer Compounds
Oct 15, 1996
WORD COUNT: 835 LINE COUNT: 00075
COMPANY NAMES: ImmunoGen Inc.--Research
INDUSTRY CODES/NAMES: BUS Business, General; BUSN Any type of business
DESCRIPTORS: Biotechnology industry--Research
PRODUCT/INDUSTRY NAMES: 2831230 (Antibodies for Human Use)
SIC CODES: 2836 Biological products exc. diagnostic
TICKER SYMBOLS: IMGN

23/8/14 (Item 14 from file: 95)
DIALOG(R)File 95:(c) 2003 FIZ TECHNIK. All rts. reserv.
01112197 I97058215942
Artificial intelligence techniques for analyzing the 3-D structure of proteins: designing new proteins
(Einsatz kuenstlicher Intelligenztechniken zur Analyse von 3D-Proteinstrukturen: Entwerfen neuer Proteine)
1996
DESCRIPTORS: PROTEINS; STRUCTURAL ANALYSIS; THREE DIMENSIONAL OBJECTS; ARTIFICIAL INTELLIGENCE; MOLECULAR STRUCTURE; FUZZY LOGIC; ARTIFICIAL NEURAL NETWORKS; MATHEMATICAL STATISTICS
IDENTIFIERS: STRUKTURVORHERSAGE; Proteindesign; kuenstliche Intelligenz

23/8/16 (Item 16 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
03162069 SUPPLIER NUMBER: 13433653
Structure of the regulatory complex of Escherichia coli IIIGlc with glycerol kinase.
Jan 29, 1993
WORD COUNT: 4097 LINE COUNT: 00331
DESCRIPTORS: Carrier proteins--Research; Glycerol kinase--Research; Escherichia coli--Research
SPECIAL FEATURES: illustration; table; chart

23/8/17 (Item 17 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
02788288 SUPPLIER NUMBER: 14262036
A molecular model of the complete three-dimensional structure of the Klenow fragment of Escherichia coli DNA polymerase I: binding of the dNTP substrate and template-primer.
March 24, 1992
DESCRIPTORS: Amino acids--Research; DNA polymerases--Research; Escherichia coli--Research
SPECIAL FEATURES: illustration; table; chart

23/8/18 (Item 18 from file: 148)
DIALOG(R)File 148:(c)2003 The Gale Group. All rts. reserv.
03907122 SUPPLIER NUMBER: 07557137 (USE FORMAT 7 OR 9 FOR FULL TEXT)
The body's master controls: unraveling proteins to tackle disease at its roots.
May 8, 1989
WORD COUNT: 1856 LINE COUNT: 00145
SPECIAL FEATURES: illustration; photograph; chart
INDUSTRY CODES/NAMES: BUS Business, General
DESCRIPTORS: Genetic research--Innovations; Pharmaceutical industry--Product development; Pharmaceutical research--Innovations; Protein research--Innovations; Drug receptors--Research
SIC CODES: 2834 Pharmaceutical preparations

23/3,AB,K/6 (Item 6 from file: 484)
DIALOG(R)File 484:Periodical Abs Plustext
(c) 2003 ProQuest. All rts. reserv.
04014641 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Polymer chemistry in science centers and museums: A survey of educational resources

Collard, David M; McKee, Scott
Journal of Chemical Education (ICHE), v75 n11, p1419-1423, p.5
Nov 1998
ISSN: 0021-9584 JOURNAL CODE: ICHE
DOCUMENT TYPE: Feature
LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 4193
ABSTRACT: Although science centers and museums can provide an excellent resource for students outside the classroom, chemistry displays are often lacking because of the nature of chemical reactions. A way to increase the availability of chemistry exhibits might be to provide interactive experiments dealing with polymers.
TEXT:
... as highlights in the history of science (e.g., on the History Wall at MSI). **Three - dimensional molecular models** of these biopolymers are presented at a number of museums along with computer animations allowing...
...the single strand DNA. Finally this RNA serves as a template for construction of the **amino acid** sequence of collagen.
Polymers in Art Museums
Science centers and museums are not the only...

23/3,AB,K/19 (Item 19 from file: 160)
DIALOG(R)File 160:Gale Group PROMT(R)
(c) 1999 The Gale Group. All rts. reserv.
02178761
MAJOR ADVANCE IN 3-D PROTEIN MODELING FROM CHEMICAL DESIGN
News Release January, 1989 p. 1
Molecular modeling specialists Chemical Design are pleased to announce an exciting new software development of major importance to research chemists and molecular biologists. Chemical Design has recently developed an automated procedure which constructs **3 - D** models of proteins from their **amino acid** sequences using sequence homology or similarity. Information on the **3 - D** structure of a protein is important because it allows interactions between small molecules and protein receptor sites to be modeled (crucial in the rational design of drugs and agrochemicals). Since the **amino acid** sequences of many receptors of physiological importance are known, but their **3 - D** structures are not, a method which converts one into the other is clearly of great value. The Chemical Design software is based on an approach developed at Birkbeck College, London, in which a **3 - D** model of a protein is constructed by comparing its **amino acid** sequence with sequences occurring in other proteins of known **3 - D** structure. The method is dependent on a high level of similarity between the proteins. This automatic tecnique has already been used successfully to build models where the sequence homology was as low as 20%, suggesting that many very useful protein models can be generated in this way. With more than 280 installations of its Chem-X software worldwide, Chemical Design is the leading supplier of computer-aided **molecular modeling** systems.
Full text available on PTS New Product Announcements.

23/3,AB,K/20 (Item 20 from file: 636)
DIALOG(R)File 636:Gale Group Newsletter DB(TM)
(c) 2003 The Gale Group. All rts. reserv.
01057064 Supplier Number: 40590474
Molecular Modeling Plays Key Role in Protein Engineering at Novo:

Genetic Technology News, v8, n12, pN/A
Dec, 1988
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 815
... the market.
Another way Novo uses protein engineering is to predict structures of molecules. While **amino acid** sequences have been determined for roughly 10,000 proteins, **three - dimensional** structures have been defined for only about 200 of them. Fortunately, proteins fall into a...
...So if you know the structure of one member of the family you can use **molecular modeling** to predict the structure of a related molecule.
Novo has been doing this with an...

29/8/2 (Item 2 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
04780893 SUPPLIER NUMBER: 20741703
Crystal structure of MTCP-1: implications for role of TCL-1 and MTCP-1 in T cell malignancies. (oncogenes)
March 31, 1998
DESCRIPTORS: Oncogenes--Research; Lymphocytic leukemia--Research
SPECIAL FEATURES: table; chart; illustration

29/8/3 (Item 3 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
04641646 SUPPLIER NUMBER: 20225586
Structure-function relationships in helix-bundle channels probed via total chemical synthesis of alamethicin dimers: Effects of a Glnsuper7 to Asnsuper7 mutation.
Nov 11, 1997
DESCRIPTORS: Peptides--Observations; Biosynthesis--Observations
SPECIAL FEATURES: photograph; table; chart; graph; illustration

29/8/4 (Item 4 from file: 636)
DIALOG(R)File 636:(c) 2003 The Gale Group. All rts. reserv.
03656889 Supplier Number: 47878563 (USE FORMAT 7 FOR FULLTEXT)
Oxford Group Looks at Homochiral Compounds
August 1, 1997
Word Count: 664
PUBLISHER NAME: Business Communications Company, Inc.
INDUSTRY NAMES: BUSN (Any type of business); CHEM (Chemicals, Plastics and Rubber); DRUG (Pharmaceuticals and Cosmetics)

29/8/5 (Item 5 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
03990288 SUPPLIER NUMBER: 18143108
Similar antigenic surfaces, rather than sequence homology, dictate T-cell epitope molecular mimicry.
Oct 24, 1995
DESCRIPTORS: Antigenic determinants--Observations; Biomolecules--Models; Amino acid sequence--Analysis
SPECIAL FEATURES: illustration; chart; graph

29/8/6 (Item 6 from file: 88)
DIALOG(R)File 88:(c) 2003 The Gale Group. All rts. reserv.
03498651 SUPPLIER NUMBER: 16379186

Mechanisms underlying expression of Tn10 encoded tetracycline resistance.
Annual, 1994
WORD COUNT: 8765 LINE COUNT: 00706
DESCRIPTORS: Drug resistance in microorganisms--Genetic aspects; Genetic regulation--Research; Tetracyclines--Genetic aspects
SPECIAL FEATURES: illustration; table; chart

29/8/7 (Item 7 from file: 95)
DIALOG(R)File 95:(c) 2003 FIZ TECHNIK. All rts. reserv.
00787289 F94060020964
AM-1 molecular orbital calculations of silica-alanine-nitrogen interaction
(AM-1 Molekuelorbitalberechnungen bei Wechselwirkungen zwischen Siliciumdioxid, Alanin und Stickstoff)
1994
DESCRIPTORS: BIOCOMPATIBLE MATERIALS; AMINO ACIDS; BONDS--CHEMICAL; BIOLOGICAL ACTIVITY; MOLECULAR ORIENTATION; EPITAXIAL GROWTH; MOLECULAR STRUCTURE; SILICON DIOXIDES; SILOXANE; NITROGEN; CRYSTAL PHYSICS; BINDING ENERGY; MICROSILICA; CHEMICAL REACTIONS; GLASS CERAMICS; ALANINE
IDENTIFIERS: MOLEKUELORBITALMODELL; Molekuelorbitaltheorie; Wechselwirkung; Biomaterial

29/8/8 (Item 8 from file: 95)
DIALOG(R)File 95:(c) 2003 FIZ TECHNIK. All rts. reserv.
00746587 T94026132178
Molekulardynàmische Simulationen zur Strukturbestimmung von Intermediaerfilamenten in alpha-Keratinen
(Molecular dynamic simulation for the investigation of intermediate filament structure in alpha-keratins)1994
DESCRIPTORS: WOOL; COMPUTER SOFTWARE; **MODELS** ; PEPTIDE; HYDROGEN BOND; **MOLECULAR** ARRANGEMENT; VACUUM; LIQUIDS; **AMINO ACIDS** ; DNA STRAIN
IDENTIFIERS: STRUKTUR; Wolle; Helixstruktur; Computersimulation

29/8/9 (Item 9 from file: 148)
DIALOG(R)File 148:(c)2003 The Gale Group. All rts. reserv.
03514975 SUPPLIER NUMBER: 06319466 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Detergency & biotechnology; using the protein engineering cycle to give enzymes desired performance characteristics.
April, 1988
WORD COUNT: 1769 LINE COUNT: 00147
SPECIAL FEATURES: illustration; photograph; graph; chart
INDUSTRY CODES/NAMES: DRUG Pharmaceuticals and Cosmetics; CHEM Chemicals, Plastics and Rubber
DESCRIPTORS: Detergents, Synthetic--Manufacture; Enzymes--Usage; Biotechnology--Research
SIC CODES: 2841 Soap and other detergents

29/3,AB,K/1 (Item 1 from file: 88)
DIALOG(R)File 88:Gale Group Business A.R.T.S.
(c) 2003 The Gale Group. All rts. reserv.
05177098 SUPPLIER NUMBER: 55487726
Site-directed mutagenesis and molecular modeling **identify a crucial** amino acid **in specifying the heparin affinity of FGF-1.(fibroblast growth factor)**
Patrie, Kevin M.; Botelho, Mary Jane; Franklin, Kendra; Chiu, Ing-Ming
Biochemistry, 38, 29, 9264(9)
July 20, 1999

ISSN: 0006-2960 LANGUAGE: English RECORD TYPE: Abstract
ABSTRACT: Research was conducted to identify cysteine-131 as a crucial amino acid in the heparin-binding domain by site-directed mutagenesis and molecular modeling. Chimeric fibroblast growth factor (FGF)-1 proteins were constructed from human and bovine FGF-1 expression constructs and were tested for their heparin affinity after iodination to localize the region responsible for the lost heparin affinity. Results indicate that cysteine-131 had important implications in the regulation of heparin binding by FGF-1 and its subsequent activity.

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File 155:MEDLINE(R) 1966-2003/Jul W3
File   5:Biosis Previews(R) 1969-2003/Jul W2
File  73:EMBASE 1974-2003/Jul W2
File  34:SciSearch(R) Cited Ref Sci 1990-2003/Jul W2
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
File 144:Pascal 1973-2003/Jul W2
File 440:Current Contents Search(R) 1990-2003/Jul 22
File  71:ELSEVIER BIOBASE 1994-2003/Jul W3
File 103:Energy SciTec 1974-2003/Jun B2
File   2:INSPEC 1969-2003/Jul W2
File   8:Ei Compendex(R) 1970-2003/Jul W2
File  65:Inside Conferences 1993-2003/Jul W3
File  35:Dissertation Abs Online 1861-2003/Jun
File  94:JICST-EPlus 1985-2003/Jul W2
File  99:Wilson Appl. Sci & Tech Abs 1983-2003/Jun
File   6:NTIS 1964-2003/Jul W3
File 315:ChemEng & Biotec Abs 1970-2003/Jun
File 437:Education Abstracts 1983-2003/Jun
File 239:Mathsci 1940-2003/Sep
Set     Items   Description
S1     260430   MOLECUL?(3N)MODEL????
S2    3193699   TEACH??? OR EDUCAT? OR LEARN???
S3    2024806   AMINO()ACID? ?
S4   18855584   3
S5    7982317   THREE
S6    8096639   D
S7    2789204   DIMENSIONAL
S8     371617   3D
S9    3252480   PHYSICAL
S10   1379537   S4:S5()S6:S7 OR S8
S11        12   S9(10W)S10(10W)S1
S12         9   S11/2000:2003
S13         3   S11 NOT S12
S14         3   RD (unique items)
S15      3034   S1(3N)S3
S16         0   S9(S)S10(S)S15
S17       221   S1(N)S3
S18         8   S9 AND S17
S19        29   S10 AND S17
S20         0   S18 AND S
S21         2   S18 AND S19
S22        33   S18:S19 NOT S21
S23        32   RD (unique items)
S24        14   S23/2000:2003
S25        18   S23 NOT S24
S26        18   S25 NOT S11
S27        18   Sort S26/ALL/PY,D

 14/6/1     (Item 1 from file: 144)
  10238238   PASCAL No.: 92-0444141
  The associated molecular nature of bituminous coal
  1992

 14/6/3     (Item 2 from file: 35)
01360074  ORDER NO: AAD94-16358
STUDIES ON 4-VINYL PROTOCHLOROPHYLLIDE REDUCTASE AND THE BIOLOGICAL
```

SIGNIFICANCE OF THE DIVINYL AND MONOVINYL MONOCARBOXYLIC CHLOROPHYLL A BIOSYNTHETIC ROUTES (CHLOROPHYLL A)
Year: 1994

14/9/2 (Item 1 from file: 35)

01453203 ORDER NO: AADAA-I9544363
STEREOCHEMISTRY PROBLEM-SOLVING: THE ROLE OF MOLECULAR STRUCTURE REPRESENTATIONS AND COGNITIVE FACTORS (COGNITION, COMPUTER MODELLING)
Author: KUO, MING-TANG
Degree: PH.D.
Year: 1995
Corporate Source/Institution: UNIVERSITY OF NORTHERN COLORADO (0161)
Source: VOLUME 56/09-A OF DISSERTATION ABSTRACTS INTERNATIONAL.
PAGE 3524. 310 PAGES
Descriptors: EDUCATION, SCIENCES ; EDUCATION, EDUCATIONAL PSYCHOLOGY ; EDUCATION, TECHNOLOGY
Descriptor Codes: 0714; 0525; 0710

The present study has two purposes. First, it examines the effect of three aspects on stereochemistry problem solving involving R/S configuration determination: molecular structure representations, molecular complexity, and the orientation of the lowest priority group in the molecule structure. Second, the relationships between five cognitive variables and the above three factors of R/S configuration determination were studied.

One hundred two college students participated in the research. Subjects completed five cognitive variables tests, then received a normal organic chemistry class. The cognitive variable tests measured visualization, spatial orientation ability, field dependence/ independence, mental capacity, and reasoning ability. After stereochemistry was taught, a stereochemistry test that included a test of basic concept knowledge and four R/S configuration determination subtests utilizing four different representations: two-dimensional, **three - dimensional** , computer, and **physical models** of **molecular** structures was administered.

The results showed that the molecular structure representations had significant effects on R/S configuration determination. Representations of molecular structure that are more difficult for students to interpret are those with more abstract features, such as two-dimensional drawings. The easier molecular structure representations, such as computer and physical models, have more concrete features. Computer simulation models were found by factor analysis to provide a representation close to that of physical models. Performance using computer models was higher than performance using paper representations and closer to performance using physical models.

R/S configuration determination was also influenced by molecular complexity. Subjects' scores were significantly lower when molecules were larger or more complex.

In addition, different orientations of the lowest priority group in molecular structures influence R/S configuration determination performance. Highest scores were achieved when the orientation of the lowest priority group was toward the back or right side.

The correlation results indicated that basic concept knowledge, mental capacity, and visualization were three major cognitive variables accounting for three factors of stereochemistry problem solving. However, the correlations between Stereochemistry Test performance and spatial orientation ability, field dependence/independence, and reasoning ability

were relatively weaker than they were for mental capacity and visualization.

21/7/1 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07680655 BIOSIS NO.: 000092027576
A HEURISTIC APPROACH TO PREDICTING THE TERTIARY STRUCTURE OF BOVINE SOMATOTROPIN
AUTHOR: CARLACCI L; CHOU K-C; MAGGIORA G M
AUTHOR ADDRESS: COMPUTATIONAL CHEM., UPJOHN LAB., KALAMAZOO, MICH. 49001.
JOURNAL: BIOCHEMISTRY 30 (18). 1991. 4389-4398. 1991
FULL JOURNAL NAME: Biochemistry
CODEN: BICHA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH
ABSTRACT: A combination of a heuristic approach and energy minimization was used to predict the **three** - **di**mensional structure of bovine somatotropin (bSt), also known as bovine growth hormone, a protein of 191 amino acids. The starting points for energy minimization were generated from the following two types of inputs: (a) the amino acid sequence and (b) the heuristic inputs, which were derived according to **physical** , chemical and biological principles by piecing together all useful information available. The predicted **3** - **D** structure of the bSt molecule has all the features observed in four-helix bundle proteins. The four .alpha.-helices in bSt are intimately packed to form an assembly with an approximately square cross section. All the adjacent .alpha.-helices are antiparallel, with a somewhat tilted angle between each of the adjacent pairs so that the assembly of the four helices looks like a left-handed twisted bundle. There are two disulfide bonds in the bSt structure: one "hooking" the middle of a long loop with helix 4 so as to pull the long loop onto the surface of the helix bundle and the other "hooking" the C-terminal segment with the same helix so as to force the C-terminal segment to bend toward the helix bundle. As a consequence, a considerable part of the surface of the four-helix bundle is closely packed or intimately embraced by the loop segments. The predicted bSt structure has a hydrophobic core and a hydrophilic exterior surface. The energetic analysis of the predicted bSt structure indicates that the interaction between helices and loops plays a dominant role in stabilizing the four-helix bundle structure from the viewpoint of both electrostatic and nonbonded interactions. A technique called FOLD was meanwhile developed, by which one can fold a polypeptide chain into any shape as desired. This tool proved to be very useful during the heuristic model-building process.

27/6/1 (Item 1 from file: 73)
10542147 EMBASE No: 2000007374
Covalent flavinylation of L-aspartate oxidase from Escherichia coli using Nsup 6-(6-carboxyhexyl)-FAD succinimidoester
1999

27/6/2 (Item 2 from file: 73)
07849948 EMBASE No: 1999323728
Studies on the relationship between structure and electrophoretic mobility of alpha-helical and beta-sheet peptides using capillary zone electrophoresis

1999

27/6/3 (Item 3 from file: 73)
07698801 EMBASE No: 1999181907
Oligosaccharide analysis and molecular modeling of soluble forms of glycoproteins belonging to the Ly-6, scavenger receptor, and immunoglobulin superfamilies expressed in Chinese hamster ovary cells
1999

27/6/4 (Item 4 from file: 73)
07603213 EMBASE No: 1999103280
FORESST: Fold recognition from secondary structure predictions of proteins
1999

27/6/5 (Item 5 from file: 73)
07585457 EMBASE No: 1999080757
Structural interpretation of site-directed mutagenesis and specificity of the catalytic subunit of protein kinase CK2 using comparative modelling
1999

27/6/6 (Item 6 from file: 73)
07550128 EMBASE No: 1999043761
Crystallographic structure reveals phosphorylated pilin from Neisseria: Phosphoserine sites modify type IV pilus surface chemistry and fibre morphology
1999

27/6/7 (Item 7 from file: 8)
05383840
Title: Solvation potential with improved contact definitions and optimized by extensive threading
Conference Title: Proceedings of the 1999 3rd Annual International Conference on Computational Molecular Biology, RECOMB '99
Publication Year: 1999

27/6/8 (Item 8 from file: 73)
07620928 EMBASE No: 1999088280
Molecular mapping with functional antibodies localizes critical sites on the human IL receptor common gamma (gammac) chain
01 OCT 1998

27/6/9 (Item 9 from file: 73)
07506467 EMBASE No: 1998391520
Identification of a beta-lactoglobulin lactosylation site
1998

27/6/10 (Item 10 from file: 73)
07373702 EMBASE No: 1998276275
AMPA receptors and bacterial periplasmic amino acid-binding proteins share the ionic mechanism of ligand recognition
17 AUG 1998

27/6/11 (Item 11 from file: 34)
05790178 Genuine Article#: WX593 Number of References: 49
Title: On the structure and activity of membrane receptors: A computational

simulation of ligand-triggered activation in a model 5-HT1A receptor (
Publication date: 19970605

27/6/12 (Item 12 from file: 155)
08636264 95324791 PMID: 7601335
Omega loops: nonregular secondary structures significant in protein function and stability.
Jun 1995

27/6/13 (Item 13 from file: 8)
03568060
Title: Amino acid side-chain populations in aqueous and saline solution: Bis-penicillamine enkephalin.
Publication Year: 1992

27/6/14 (Item 14 from file: 6)
1712407 NTIS Accession Number: AD-P008 414/5
Molecular Tools for the Design of Gamma-Turn in Peptide
1992

27/6/15 (Item 15 from file: 6)
1712406 NTIS Accession Number: AD-P008 413/7
Protein Engineering of Betabellin 12
1992

27/6/16 (Item 16 from file: 6)
1712399 NTIS Accession Number: AD-P008 406/1
Switch Peptides: Medium Induced Alpha-Helix to Beta-Sheet Transitions of Bis-Amphiphilic Secondary Structures and Their Membrane Activity
1992

27/6/17 (Item 17 from file: 5)
08177214 BIOSIS NO.: 000094000987
PRENRL- 3D A COMPUTER PROGRAM FOR AN AUTOMATIC CREATION OF NRL- 3D PROTEIN SEQUENCE-STRUCTURE DATABASE FROM THE PROTEIN DATA BANK
1991

27/7/18 (Item 18 from file: 6)
DIALOG(R)File 6:NTIS
(c) 2003 NTIS, Intl Cpyrght All Rights Res. All rts. reserv.
1439041 NTIS Accession Number: PB89-175285
Comparative Modeling of Protein Structure: Progress and Prospects
Moult, J.
Maryland Univ., Rockville. Center for Advanced Research in Biotechnology.
Corp. Source Codes: 094174001
1989 6p
Languages: English
Journal Announcement: GRAI8914
Included in Jnl. of Research of the National Institute of Standards and Technology, v94 nl p79-84 January/February 1989.
NTIS Prices: (Order as PB89-175194, PC A06)
Country of Publication: United States
Comparative modeling of protein structure is a process which determines the **three - dimensional** structure of protein molecules on the basis of amino acid sequence similarity to experimentally known structures. The procedure is facilitated by the growing database of protein structures

obtained from crystallography. In the review a series of stages in the modeling process are identified and discussed. These are (i) obtaining a reliable amino acid sequence of the structure of interest, (ii) producing a structurally correct sequence of the structure of interest, (ii) producing a structurally correct sequence alignment, (iii) identifying which structural features are conserved between target and parent structures, (iv) modeling the new pieces of structure, and (v) tests of reliability.

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File 155:MEDLINE(R) 1966-2003/Jul W3
File   5:Biosis Previews(R) 1969-2003/Jul W2
File  73:EMBASE 1974-2003/Jul W2
File  34:SciSearch(R) Cited Ref Sci 1990-2003/Jul W2
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
File 440:Current Contents Search(R) 1990-2003/Jul 22
File 144:Pascal 1973-2003/Jul W2
File  71:ELSEVIER BIOBASE 1994-2003/Jul W3
File 103:Energy SciTec 1974-2003/Jun B2
File   2:INSPEC 1969-2003/Jul W2
File   8:Ei Compendex(R) 1970-2003/Jul W2
File  65:Inside Conferences 1993-2003/Jul W3
File  35:Dissertation Abs Online 1861-2003/Jun
File  94:JICST-EPlus 1985-2003/Jul W2
File  99:Wilson Appl. Sci & Tech Abs 1983-2003/Jun
File   6:NTIS 1964-2003/Jul W3
File 315:ChemEng & Biotec Abs 1970-2003/Jun
File 437:Education Abstracts 1983-2003/Jun
File 239:Mathsci 1940-2003/Sep
File   1:ERIC 1966-2003/Jul 15
File 121:Brit.Education Index 1976-2003/Q2
Set     Items   Description
S1     260635   MOLECUL?(3N)MODEL????
S2    4203754   TEACH??? OR EDUCAT? OR LEARN???
S3    2024888   AMINO()ACID? ?
S4       1821   S1 AND S2
S5        765   S1/TI,DE AND S2/TI,DE
S6         54   S3/TI,DE AND S5
S7       5768   S1(5N)S3
S8          8   S6 AND S7
S9          7   RD (unique items)
S10         4   S9/2000 OR S9/2001 OR S9/2002 OR S9/2003
S11         3   S9 NOT S10
S12       333   S1(5N)S2
S13       275   S5 AND S12
S14       145   S13/TI
S15        24   S14/2003 OR S14/2002 OR S14/2001 OR S14/2000
S16       121   S14 NOT S15
S17        84   RD (unique items)
S18        88   S12/TI
S19        38   S17 AND S18
S20        38   Sort S19/ALL/PY,D
S21    236696   3()D
S22    371737   3D
S23    965717   (3 OR THREE)()DIMENSIONAL
S24        83   S5 AND S23
S25        29   S5 AND S21:S22
S26        99   S24:S25 NOT S19
S27        56   RD (unique items)
S28        10   S27/2003 OR S27/2002 OR S27/2001 OR S27/2000
S29        46   S27 NOT S28
S30        46   Sort S29/ALL/PY,D

 11/9/2     (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2003 The Dialog Corp. All rts. reserv.
```

08108537 94174297 PMID: 8128241
Molecule makers learn **the rules of a crooked game.**
Flam F
Science (UNITED STATES) Mar 18 1994, 263 (5153) p1563-4, ISSN 0036-8075 Journal Code: 0404511
Document type: News
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS
Descriptors: *Protein Engineering; *Protein Folding; **Amino Acid** Sequence; **Models , Molecular** ; Protein Conformation; Protein Structure, Secondary
Record Date Created: 19940413
Record Date Completed: 19940413

20/6/2 (Item 2 from file: 65)
03553315 INSIDE CONFERENCE ITEM ID: CN037428231
Computerized Molecular Modeling **as a Collaborative** Learning **Environment**
CONFERENCE: Computer support for collaborative learning-Conference (199912)

20/6/3 (Item 3 from file: 1)
01040268 ERIC NO.: EJ595944 CLEARINGHOUSE NO.: SE562475
High-School Chemistry Students' Performance and Gender Differences in a Computerized **Molecular Modeling Learning** Environment.
1999 (19990000)

20/6/4 (Item 4 from file: 34)
07021620 Genuine Article#: 107WX Number of References: 0
Title: Molecular modeling **exercises to** teach **organic chemistry.**
Publication date: 19980823

20/6/5 (Item 5 from file: 34)
06558792 Genuine Article#: ZA911 Number of References: 0
Title: Molecular modeling **in** teaching **organic chemistry.**
Publication date: 19980402

20/6/6 (Item 6 from file: 34)
06160553 Genuine Article#: XY994 Number of References: 6
Title: Specific heats of model **gas** molecules : **An oral exam** teaching **strategy** (ABSTRACT AVAILABLE)
Publication date: 19971000

20/6/7 (Item 7 from file: 34)
05700248 Genuine Article#: WP185 Number of References: 0
Title: Electron density models **for** teaching molecular **structure.**
Publication date: 19970413

20/6/8 (Item 8 from file: 34)
05698799 Genuine Article#: WP185 Number of References: 0
Title: The regional molecular modeling **workshop for college** teachers **at UMass.**
Publication date: 19970413

20/6/9 (Item 9 from file: 35)
01597524 ORDER NO: AAD98-02420
STUDENTS' USE OF ATOMIC AND MOLECULAR MODELS **IN** LEARNING **CHEMISTRY (VISUAL** LEARNING **)**
Year: 1997

20/6/11 (Item 11 from file: 437)
0667802 H.W. WILSON RECORD NUMBER: BEDI96023022
Secondary students' mental models **of atoms and** molecules : **implications for** teaching **chemistry**
19960900

20/6/18 (Item 18 from file: 34)
02641215 Genuine Article#: LU087 Number of References: 1
Title: MOLECULAR MODELING **AIDS CHEMISTRY RESEARCH AND** TEACHING (Abstract Available)

20/6/19 (Item 19 from file: 34)
01854860 Genuine Article#: JF947 Number of References: 15
Title: TEACHING MOLECULAR MODELING **- AN INTRODUCTORY COURSE FOR CHEMISTS, IMPLEMENTED AT THE UNIVERSITE-DE-MONTREAL**

20/6/20 (Item 20 from file: 34)
01172622 Genuine Article#: GB720 Number of References: 10
Title: THE USE OF THE DESK-TOP MOLECULAR MODELER **SOFTWARE IN THE** TEACHING **OF STRUCTURAL CHEMISTRY**

20/6/23 (Item 23 from file: 34)
00355992 Genuine Article#: DG642 Number of References: 0
Title: MOLECULAR MODELING **TECHNIQUES FOR UNDERGRADUATE** TEACHING **AND RESEARCH**

20/6/25 (Item 25 from file: 155)
05636383 87315833 PMID: 2442665
Molecular **kinetic** modelling **of associative** learning .
Jul 1987

20/6/26 (Item 26 from file: 5)
05484901 BIOSIS NO.: 000033085754
MOLECULAR MODELS **OF ASSOCIATIVE** LEARNING **IN DROSOPHILA**
1987

20/6/27 (Item 27 from file: 2)
02579960 INSPEC Abstract Number: C86011037
Title: From molecular models **to weather charts (** educational **graphics)**
Publication Date: July-Aug. 1985

20/6/30 (Item 30 from file: 2)
01225479 INSPEC Abstract Number: A78061968
Title: Dynamics and time-averaged behaviour of a molecular **dissociation** model . **(** Teaching **)**
Publication Date: May 1978

20/6/31 (Item 31 from file: 2)
01074313 INSPEC Abstract Number: A77057117

Title: A molecular **membrane** model **(teaching demonstration)**
Publication Date: March 1977

20/6/32 (Item 32 from file: 155)
02423972 77112815 PMID: 1016695
Complementary molecular models **of** learning **and memory.**
Dec 1976

20/6/33 (Item 33 from file: 434)
00271848 Genuine Article#: T6900 Number of References: 43
Title: PHOTOELECTRON-SPECTRA - EXPERIMENTAL APPROACH TO TEACHING MOLECULAR **-ORBITAL** MODELS

20/6/34 (Item 34 from file: 155)
01628221 74027925 PMID: 4356425
General model **for the** molecular **events in synapses during** learning .
Autumn 1973

20/6/35 (Item 35 from file: 5)
01211177 BIOSIS NO.: 000056021380
CHEMISTRY OF PHYLOGENETIC AND ONTOGENETIC ADAPTATION AND LEARNING **PROCESSES INFORMATION THEORY QUASI** MOLECULAR MODEL
1973

20/7/1 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2003 Inst for Sci Info. All rts. reserv.
08116140 Genuine Article#: 226QZ Number of References: 0
Title: Education **with** molecular modeling : **Quantum chemistry for the masses.**
Author(s): Hehre WJ
Corporate Source: WAVEFUNCT INC,/IRVINE//CA/92612
Journal: ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY, 1999, V218, 1 (AUG 22), P39-COMP
ISSN: 0065-7727 Publication date: 19990822
Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036
Language: English Document Type: MEETING ABSTRACT

20/7/10 (Item 10 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2003 Inst for Sci Info. All rts. reserv.
05253069 Genuine Article#: VK868 Number of References: 10
Title: MANIPULATING THE INVISIBLE - LEARNING MOLECULAR **-BIOLOGY USING INEXPENSIVE** MODELS
Author(s): MALACINSKI GM; ZELL PW
Corporate Source: INDIANA UNIV,DEPT BIOL/BLOOMINGTON//IN/47405
Journal: AMERICAN BIOLOGY TEACHER, 1996, V58, N7 (OCT), P428-432
ISSN: 0002-7685
Language: ENGLISH Document Type: ARTICLE
Abstract: The restructuring of the biology curriculum at Indiana University has positioned the molecular biology lecture course as the first course in biology beyond the freshman introductory courses. An understanding of molecular biology is increasingly considered an essential prerequisite for the study of all other areas of biology. However, molecular biology, with its heavy emphasis on minute detail and abstract concepts, is an intellectual challenge that many sophomores

are not developmentally ready to engage. Research and experience have documented the problems traditional college freshmen have understanding abstract concepts (Lawson & Renner 1974; Herron 1975; Carmichael et al. 1980; Stencel & Barkoff 1993; Gottfried et al. 1993). Assessment of Indiana University biology students' intellectual level confirms that research and experience (Etchberger & Zell 1991). in addition, our departmental assessment revealed that some sophomores are still concrete thinkers and the majority of sophomores still function in transitional stages that have not attained the formal (abstract) thinking level.

Simply stated, concrete thinkers depend primarily on their senses to learn. Although concrete thinkers can think logically, their logic is limited to immediate experience with things they can see and manipulate directly. Their reasoning is based on ''real'' rather than ''abstract'' possibilities. Since abstract concepts are not amenable to sensing, students who are not formal in their thought patterns have great difficulty mentally representing the abstract and complex operations of molecular biology.

To bolster college sophomores in handling the increased intellectual challenge of molecular biology, we have developed academic and social support mechanisms. Supports include collaborative learning groups led by peer tutors, using a non-encyclopedic textbook (Freifelder & Malacinski 1993), and an extensive course guide which includes suggestions on how to study both individually and in collaborative groups, But, the most important sensory tools for those students still making the transition from concrete thinking to higher levels are the ''pipe cleaner'' models that provide a concrete experience of abstract concepts such as DNA replication, RNA synthesis, and protein synthesis.

This article describes three such models, explains their hands-on use, and notes their advantages for learning and teaching. A major practical advantage of pipe-cleaner models is their low cost. The models are made from inexpensive craft materials (pipe-cleaner stems, beads, page hole reinforcements, self-adhesive labels, and sheets of polyethylene). The most expensive kit costs less than 25 cents.

20/7/12 (Item 12 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2003 Inst for Sci Info. All rts. reserv.
04286831 Genuine Article#: QP232 Number of References: 0
Title: THE FUTURE OF COMPUTER-BASED MOLECULAR MODELING **IN CHEMICAL** EDUCATION **- IS THE TAIL WAGGING THE DOG**
Author(s): SHUSTERMAN AJ
Corporate Source: REED COLL,DEPT CHEM/PORTLAND//OR/97202
Journal: ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY, 1995, V209, APR (APR 2), P508-CHED
ISSN: 0065-7727
Language: ENGLISH Document Type: MEETING ABSTRACT

20/7/13 (Item 13 from file: 1)
DIALOG(R)File 1:ERIC
(c) format only 2003 The Dialog Corporation. All rts. reserv.
00910642 ERIC NO.: EJ522077 CLEARINGHOUSE NO.: SE555698
Using **Molecular Models** to **Teach** Chemistry. Part 2: Using Models.
Hardwicke, Anthony J.
School Science Review, v77 n279 p47-56 Dec 1995

1995 (19950000)
ISSN: 0036-6811
LANGUAGE: English
DOCUMENT TYPE: 80 (Journal articles); 120 (Opinion papers)
RECORD TYPE: ABSTRACT
JOURNAL ANNOUNCEMENT: CIJAUG1996
Presents a causal mechanism linking models to learning in order to establish whether or not good models are good for teaching. (MKR)

20/7/14 (Item 14 from file: 1)
DIALOG(R)File 1:ERIC
(c) format only 2003 The Dialog Corporation. All rts. reserv.
00909339 ERIC NO.: EJ520774 CLEARINGHOUSE NO.: SE555659
Using **Molecular Models** to **Teach** Chemistry. Part I: **Modelling Molecules** .
Hardwicke, Anthony J.
School Science Review, v77 n278 p59-64 Sep 1995
1995 (19950000)
ISSN: 0036-6811
LANGUAGE: English
DOCUMENT TYPE: 80 (Journal articles); 120 (Opinion papers)
RECORD TYPE: ABSTRACT
JOURNAL ANNOUNCEMENT: CIJJUL1996
Examines the general philosophical nature of models in science and the relationship between models and analogies. Applies these ideas to molecular models in particular. (Author/JRH)

20/7/15 (Item 15 from file: 1)
DIALOG(R)File 1:ERIC
(c) format only 2003 The Dialog Corporation. All rts. reserv.
00907385 ERIC NO.: EJ518820 CLEARINGHOUSE NO.: SE555275
Using Three-Dimensional **Models** to **Teach** **Molecular** Structures in High School Chemistry.
Copolo, Cynthia F.; Hounshell, Paul B.
Journal of Science Education and Technology, v4 n4 p295-305 Dec 1995
1995 (19950000)
ISSN: 1059-0145
LANGUAGE: English
DOCUMENT TYPE: 80 (Journal articles); 143 (Reports--Research)
RECORD TYPE: ABSTRACT
JOURNAL ANNOUNCEMENT: CIJJUN1996
Compares the effects of using two- and three-dimensional model representations of molecular structures on student learning of organic chemical structures. Reports that students using both three-dimensional computer models and ball-and-stick models scored higher on the three-dimensional retention test of isomeric identification but lower on a similar two-dimensional test. (Author/JRH)

20/7/16 (Item 16 from file: 144)
DIALOG(R)File 144:Pascal
(c) 2003 INIST/CNRS. All rts. reserv.
11552666 PASCAL No.: 94-0435347
La modelisation moleculaire : une revolution dans l'enseignement de la chimie : Dossier informatique
(The molecular modeling **: a revolution in the chemical** teaching **)**
HANKS T; KOTZ J; GUERNIER T E trad

Univ. Etat New York, dep. chimie, Oneonta NY, USA; CAChe Scientific, 91941 Les Ulis, France
Journal: Spectra analyse, 1994, 23 (177) 46-48
Availability: INIST-16489; 354000049829980050
Document Type: P (Serial) ; A (Analytic)
Country of Publication: France
Language: French Summary Language: English

20/7/17 (Item 17 from file: 437)
DIALOG(R)File 437:Education Abstracts
(c) 2003 The HW Wilson Co. All rts. reserv.
Students drawn to three-D; a new computer-aided **learning** laboratory for **molecular modeling**
Irwin, Aisling
The Times Higher Education Supplement (Times Higher Educ Suppl) no1130 (July 8 '94) p. i
DOCUMENT TYPE: Feature Article ISSN: 0049-3929

20/7/21 (Item 21 from file: 315)
DIALOG(R)File 315:ChemEng & Biotec Abs
(c) 2003 DECHEMA. All rts. reserv.
285131 CEABA Accession No.: 22-12-016134 DOCUMENT TYPE: Journal
Title: Molecular modelling **for schools and** education
Orig. Title: Molekuelgrafik fuer Schule und Ausbildung
AUTHOR: Heimgaertner, H.
JOURNAL: NACHRICHTEN AUS CHEMIE, TECHNIK UND LABORATORIUM (WEINHEIM),
Volume: 39, Issue: 4, Page(s): 420,422-423
CODEN: NCTLDI ISSN: 03415163
PUBLICATION DATE: 1991 (910000) LANGUAGE: German
ABSTRACT: Different computer programs for molecular modelling are introduced. Their abilities, advantages and disadvantages,the essential equipment and the prices are discussed. (Umlauf)

20/7/22 (Item 22 from file: 94)
DIALOG(R)File 94:JICST-EPlus
(c)2003 Japan Science and Tech Corp(JST). All rts. reserv.
01069394 JICST ACCESSION NUMBER: 90A0495823 FILE SEGMENT: JICST-E
Hand-made molecular model **-entertaining as well as** educational ..
FUJISE YUTAKA (1); HORIUCHI KENTARO (1)
(1) Hamamatsu Univ. School of Medicine
Kagaku to Kyoiku(Chemical Education), 1990, VOL.38,NO.2, PAGE.216-219, FIG.6, REF.4
JOURNAL NUMBER: G0942ABK ISSN NO: 0386-2151 CODEN: KAKYE
UNIVERSAL DECIMAL CLASSIFICATION: 54:377
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication

20/7/24 (Item 24 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2003 Inst for Sci Info. All rts. reserv.
00355988 Genuine Article#: DG642 Number of References: 0
Title: MOLECULAR MODELING **- A NEW TOOL IN CHEMICAL** EDUCATION
Author(s): MADURA JD
Corporate Source: UNIV HOUSTON,DEPT CHEM/HOUSTON//TX/77204

Journal: ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY, 1989, V198, SEP, P18-COMP
Language: ENGLISH Document Type: MEETING ABSTRACT

20/7/28 (Item 28 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci
(c) 1998 Inst for Sci Info. All rts. reserv.
06180497 Genuine Article#: TW850 Number of References: 4
Title: USING THE QCPE HOLDINGS IN CHEMICAL EDUCATION - MOLECULAR - MODELS **IN THE ORGANIC-CHEMISTRY LABORATORY**
Author(s): LIPKOWITZ K
Corporate Source: INDIANA UNIV,PURDUE UNIV/INDIANAPOLIS//IN/46223
Journal: JOURNAL OF CHEMICAL EDUCATION, 1984, V61, N12, P1051-1052
Language: ENGLISH Document Type: ARTICLE

20/7/29 (Item 29 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci
(c) 1998 Inst for Sci Info. All rts. reserv.
04105318 Genuine Article#: LG431 Number of References: 0
Title: A NEW SEMIFLEXIBLE MOLECULAR - MODEL **SET - COMMUNICATION AND VISUALIZATION IN** TEACHING
Author(s): DARLING SD; JENDRISAK A; BOKMILLER D
Corporate Source: UNIV AKRON,DEPT CHEM/AKRON//OH/44325; TACOMA PROD INC/TALLMADGE//OH/44278
Journal: ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY, 1980, V180, AUG, P24-CHED
Language: ENGLISH Document Type: MEETING ABSTRACT

20/7/36 (Item 36 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
(c) 2003 BIOSIS. All rts. reserv.
00579256 BIOSIS NO.: 000007029221
MOLECULAR MODELS **FOR MACRO** MOLECULES **A NEW CONCEPT FOR** TEACHING **AND RESEARCH**
AUTHOR: SMITH I; SMITH M J
JOURNAL: BIOCHEM J 118 (2). 1970 40P 1970
FULL JOURNAL NAME: Biochemical Journal
CODEN: BIJOA
DOCUMENT TYPE: Meeting
RECORD TYPE: Citation

20/7/37 (Item 37 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2003 The Dialog Corp. All rts. reserv.
00066863 66109018 PMID: 4160059
Molecular models **for** teaching **and research.**
Egli R
Laboratory practice (ENGLAND) Feb 1966, 15 (2) p209-11, ISSN 0023-6853. Journal Code: 0376620
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Record Date Created: 19660621
Record Date Completed: 19660621

20/7/38 (Item 38 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online

304536 ORDER NO: AAD66-00349
THREE-DIMENSIONAL MOLECULAR MODELS **AND THE** LEARNING **OF ATOMIC STRUCTURE, CHEMICAL BONDING, AND VALENCY THEORY AT THE SECONDARY LEVEL IN CHEMISTRY**
Author: GOLDBERG, HARRIS PAUL
Degree: ED.D.
Year: 1965
Corporate Source/Institution: BOSTON UNIVERSITY SCHOOL OF EDUCATION (0851)
Source: VOLUME 28/01-B OF DISSERTATION ABSTRACTS INTERNATIONAL. PAGE 84. 140 PAGES

30/6/1 (Item 1 from file: 155)
11564508 98456597 PMID: 9783258
The use of VRML in chemical education .
Feb 1998

30/6/2 (Item 2 from file: 35)
01655048 ORDER NO: AAD98-38914
EVALUATION OF A CONSTRUCTIVIST USE OF MOLECULAR MODELING **IN FIRST YEAR COLLEGE CHEMISTRY**
Year: 1998

30/6/3 (Item 3 from file: 437)
0699981 H.W. WILSON RECORD NUMBER: BEDI98021456
Computer applications in the biomolecular sciences. Part 1: Molecular modelling
19980400

30/6/4 (Item 4 from file: 437)
0668705 H.W. WILSON RECORD NUMBER: BEDI98024351
Models **and** molecules **--a workshop on stereoisomers**
19980700

30/6/5 (Item 5 from file: 94)
03364688 JICST ACCESSION NUMBER: 97A0383551 FILE SEGMENT: JICST-E
Cooperative phenomena of polymer solution. (The Ministry of Education , **Science and Culture S).** , 1997

30/6/6 (Item 6 from file: 5)
10460608 BIOSIS NO.: 199699081753
A global taxonomy of loops in globular proteins.
1996

30/6/7 (Item 7 from file: 5)
10315931 BIOSIS NO.: 199698770849
New approaches in molecular structure prediction.
1996

30/6/8 (Item 8 from file: 2)
5376752 INSPEC Abstract Number: C9611-7810C-012
Title: The evaluation of integrated courseware: can interactive molecular modelling **help students understand** three - dimensional **chemistry?**

Publication Date: May 1996
Copyright 1996, IEE

30/6/9 (Item 9 from file: 34)
05104746 Genuine Article#: VA568 Number of References: 25
Title: COMPUTERIZED MOLECULAR MODELING **AS A TOOL TO IMPROVE CHEMISTRY** TEACHING (Abstract Available)

30/6/10 (Item 10 from file: 35)
01540651 ORDER NO: AAD97-12663
VISUALIZATION OF STEREOCHEMISTRY: THE COMPARISON OF COMPUTER-ANIMATED, HAND-HELD, AND TWO-DIMENSIONAL REPRESENTATIONS OF MOLECULAR MODELS
Year: 1996

30/6/11 (Item 11 from file: 1)
00936097 ERIC NO.: EJ534852 CLEARINGHOUSE NO.: SE556936
Computer **Modelling** of Biological **Molecules** : Free Resources on the Internet.
1996 (19960000)

30/6/12 (Item 12 from file: 103)
03745116 EDB-94-161082
Title: Molecular modeling **of fullerenes with modular origami**
Title: 208th ACS national meeting
Conference title: 208. American Chemical Society national meeting
Publication Date: 1994

30/6/13 (Item 13 from file: 94)
02029914 JICST ACCESSION NUMBER: 94A0356693 FILE SEGMENT: JICST-E
Development of an Electronic Picture Book of Molecules III. A volume of Proteins and Nucleic Acids., 1994

30/6/16 (Item 16 from file: 437)
0299508 H.W. WILSON RECORD NUMBER: BEDI94011691
Data-driven chemistry: building models **of** molecular **structure (literally) from electron diffraction data**
19940200

30/6/17 (Item 17 from file: 155)
07857450 93313130 PMID: 8324196
Teaching **electron diffraction and imaging of macromolecules.**
May 1993

30/6/18 (Item 18 from file: 1)
00853048 ERIC NO.: ED361212 CLEARINGHOUSE NO.: SE053638
A Case Study of the Introduction of RISC-based Computing and a Telecommunications Link to a Suburban High School.
April 1993 (19930400)

30/6/19 (Item 19 from file: 155)
07403536 92266816 PMID: 1726080
Six years of protein structure determination by NMR spectroscopy: what have we learned ?
1991

30/6/20 (Item 20 from file: 155)

06967600 91208083 PMID: 1708280
PC-based molecular modeling **in the classroom: applications to medicinal chemistry and biochemistry.**
Mar 1991

30/6/21 (Item 21 from file: 1)
00744241 ERIC NO.: EJ419062 CLEARINGHOUSE NO.: SE547043
Learning the Visualisation of Rotations in Diagrams of **Three Dimensional** Structures.
1990 (19900000)

30/6/22 (Item 22 from file: 1)
00740799 ERIC NO.: EJ415620 CLEARINGHOUSE NO.: SE546686
Keeping Track of Directions of Atomic Orbitals.
1990 (19900000)

30/6/23 (Item 23 from file: 94)
00760878 JICST ACCESSION NUMBER: 89A0509103 FILE SEGMENT: JICST-E
Modelling **of steric** molecular **structure by computation (3D -molmaster). Part 7. Program for making input data for PSI/77.**, 1989

30/6/24 (Item 24 from file: 1)
00687838 ERIC NO.: EJ387860 CLEARINGHOUSE NO.: SE544239
Construction of the Seven Basic Crystallographic Units.
1989 (19890000)

30/6/25 (Item 25 from file: 1)
00687837 ERIC NO.: EJ387859 CLEARINGHOUSE NO.: SE544238
Carbohydrate Stereochemistry.
1989 (19890000)

30/6/26 (Item 26 from file: 94)
00798047 JICST ACCESSION NUMBER: 89A0619241 FILE SEGMENT: JICST-E
A method of three - dimensional **display of the predicted higher order structures of proteins. Report of the results of research (general research B) supported by the grants-in-aid for scientific research in 1987. (Sponsor : Ministry of** Education **) ,** 1988

30/6/27 (Item 27 from file: 121)
00011619 SUBFILE: British Education Theses Index (BETI)
The relation between the use of molecular models **, the development of spatial orientation ability and cognitive attainment in organic chemistry in Egyptian secondary schools**
PUBLICATION YEAR(S): 1988

30/6/28 (Item 28 from file: 2)
03234253 INSPEC Abstract Number: A88126823
Title: The mounting of stereo slides for projecting molecular models
Publication Date: Dec. 1987

30/6/30 (Item 30 from file: 1)
00626984 ERIC NO.: EJ351384 CLEARINGHOUSE NO.: SE540438
Tangent Sphere Model. An Analog to Chemical Structure.
1986 (19860000)

30/6/31 (Item 31 from file: 1)

00626966 ERIC NO.: EJ351366 CLEARINGHOUSE NO.: SE540403
A Procedure for Preparing Models of Receptor Sites.
1986 (19860000)

30/6/32 (Item 32 from file: 1)
00623551 ERIC NO.: EJ347951 CLEARINGHOUSE NO.: SE539917
A Novel Method for Assigning R, S Labels to Enantiomers.
1986 (19860000)

30/6/33 (Item 33 from file: 1)
00596701 ERIC NO.: EJ333575 CLEARINGHOUSE NO.: SE539046
Crystal Model Kits for Use in the General Chemistry Laboratory.
1986 (19860000)

30/6/34 (Item 34 from file: 1)
00595261 ERIC NO.: EJ332135 CLEARINGHOUSE NO.: SE538920
An Easily Constructed Cuboctahedron Model.
1985 (19850000)

30/6/35 (Item 35 from file: 1)
00595259 ERIC NO.: EJ332133 CLEARINGHOUSE NO.: SE538918
Stereoscopic Projection in Organic Chemistry: Bridging the Gap between Two and Three Dimensions.
1985 (19850000)

30/6/36 (Item 36 from file: 1)
00570666 ERIC NO.: EJ320343 CLEARINGHOUSE NO.: SE537705
The Factor Structure for Mental Rotations of **Three - Dimensional** Structures Represented in Diagrams.
1985 (19850000)

30/6/37 (Item 37 from file: 1)
00560852 ERIC NO.: EJ310529 CLEARINGHOUSE NO.: SE536754
Three - Dimensional Pointers for Stereoscopic Projection.
1984 (19840000)

30/6/38 (Item 38 from file: 1)
00506942 ERIC NO.: EJ284493 CLEARINGHOUSE NO.: SE533924
Molecular Recognition in Drug Research.
May 1983 (19830500)

30/6/40 (Item 40 from file: 2)
01241155 INSPEC Abstract Number: A78073817
Title: Molecular models **based on Petri dishes**
Publication Date: Jan. 1978

30/6/41 (Item 41 from file: 2)
01109634 INSPEC Abstract Number: A77078936
Title: A simplified molecular model **of t-RNA for use as a** teaching **aid**
Publication Date: May 1977

30/6/42 (Item 42 from file: 1)
00284540 ERIC NO.: EJ154173 CLEARINGHOUSE NO.: SE518395
Stereoscopic Diagrams Prepared by a Desk Calculator and Plotter
1977 (19770000)

30/6/43 (Item 43 from file: 1)
00211427 ERIC NO.: EJ113220 CLEARINGHOUSE NO.: SE512648
3 - D Structure of Molecules of Biological Significance
1974 (19740000)

30/6/44 (Item 44 from file: 1)
00211361 ERIC NO.: EJ113154 CLEARINGHOUSE NO.: SE512404
Selective Focused Projection of Molecular Structures and Other **Three - Dimensional** Arrays
1974 (19740000)

30/6/45 (Item 45 from file: 2)
00557376 INSPEC Abstract Number: A73061976
Title: Films of rotating molecular models ; **The stereoscopic effect**
Publication Date: June 1973

30/6/46 (Item 46 from file: 1)
00114442 ERIC NO.: EJ057098 CLEARINGHOUSE NO.: SE505799
The Use of **Molecular Models** in an Introductory Course on the Chemistry of the Silicates
1972 (19720000)

30/9/14 (Item 14 from file: 1)
DIALOG(R)File 1:ERIC
(c) format only 2003 The Dialog Corporation. All rts. reserv.
00869839 ERIC NO.: EJ493807 CLEARINGHOUSE NO.: SE553313
Modeling Molecules .
Streitberger, H. Eric
Science Teacher, v61 n6 p46-48 Sep 1994
1994 (19940000)
ISSN: 0036-8555
LANGUAGE: English
DOCUMENT TYPE: 80 (Journal articles); 143 (Reports--Research)
RECORD TYPE: ABSTRACT
JOURNAL ANNOUNCEMENT: CIJMAR1995
Describes a method that uses ping-pong balls to construct **3 - D** models of covalent molecules to represent Group I-VIII atoms. (ZWH)
DESCRIPTORS: Chemistry; Demonstrations (Science); * **Models** ; * **Molecular Structure** ; Science **Education** ; Science Instruction; Secondary **Education**

30/9/15 (Item 15 from file: 437)
DIALOG(R)File 437:Education Abstracts
(c) 2003 The HW Wilson Co. All rts. reserv.
0316570 H.W. WILSON RECORD NUMBER: BEDI94028854
Modeling **atoms &** molecules : **a new lesson for upper elementary & middle school students**
Schwaner, Terry D
Petty, John T; Schwaner, Lila A
The American Biology Teacher (Am Biol Teach) v. 56 (Nov./Dec. '94) p. 488-91
DOCUMENT TYPE: Feature Article ISSN: 0002-7685
LANGUAGE: English
RECORD STATUS: New record
ABSTRACT: A hands-on approach that helps students to visualize the simplest concepts of atomic structure is described. Using balloons and

ball bearings, models that present a **3 - D** visualization of the 2-D Bohr model format were constructed. The single most important aspect of the approach is that it presents a dynamic view of how electrons spinning in orbitals determine much of the spatial structure and consequently the function of atoms and molecules. The lesson has been very favorably received by elementary and middle school teachers and students.
DESCRIPTORS:
Molecules--Models; Science-- **Teaching** --Elementary schools; Nuclear models; Science-- **Teaching** --Middle schools

30/9/39 (Item 39 from file: 1)
DIALOG(R)File 1:ERIC
(c) format only 2003 The Dialog Corporation. All rts. reserv.
00505598 ERIC NO.: EJ283149 CLEARINGHOUSE NO.: SE533797
Giant Atomic and **Molecular Models** and Other Lecture Demonstration Devices Designed for Concrete Operational Students.
Battino, Rubin
Journal of Chemical Education, v60 n6 p485-88 Jun 1983
June 1983 (19830600)
LANGUAGE: English
DOCUMENT TYPE: 80 (Journal articles); 141 (Reports--Descriptive)
RECORD TYPE: ABSTRACT
JOURNAL ANNOUNCEMENT: CIJOCT1983
TARGET AUDIENCE: Practitioners
Describes the design, construction, and use of oversize lecture-demonstration atomic/molecular models. These models appeal to both concrete and formal operational students. Also describes construction and use of an "spdf" sandwich board and an experiment using attribute blocks. (JN)
DESCRIPTORS: Atomic Structure; *Chemistry; *College Science; Demonstrations (**Educational**); Developmental Stages; Display Aids; Higher **Education** ; * **Models** ; * **Molecular Structure** ; Science Activities; Science **Education** ; *Science Experiments; **Three Dimensional** Aids

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File 350:Derwent WPIX 1963-2003/UD,UM &UP=200346
File 347:JAPIO Oct 1976-2003/Mar(Updated 030703)
File 371:French Patents 1961-2002/BOPI 200209
Set     Items   Description
S1        382   MOLECUL?(3N)MODEL????
S2      48540   TEACH??? OR EDUCAT? OR LEARN???
S3      98004   AMINO()ACID? ?
S4    6969755   3
S5     542935   THREE
S6    1370277   D
S7     180059   DIMENSIONAL
S8      31174   3D
S9     128842   PHYSICAL
S10       144   IC=G09B-023/26
S11    121812   S4:S5()S6:S7 OR S8
S12         1   S1 AND S9 AND S11 AND S10
S13        55   S1 AND S10
S14        12   S11 AND S13
S15        11   S14 NOT S12
S16         3   S15/2000:2003
S17         8   S15 NOT S16
S18         3   S1 AND S3 AND S10
S19         1   S18 NOT S14

 12/26,TI/1     (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003  Thomson Derwent. All rts. reserv.
009675474
WPI Acc No: 1993-369027/199346
  Appts. used in  molecular   modelling  - comprises storage device holding
  commands casuing data processor to determine effective Born radii for
  each atom in molecule

 17/7/1     (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003  Thomson Derwent. All rts. reserv.
010628587    **Image available**
WPI Acc No: 1996-125540/199613
3-dimensional molecular structural model for use in chemical and educational
fields - obtains model constituted by hollow polygonal bodies formed by
bending and interconnecting end faces of board shape parts together
Patent Assignee: MISUI T (MISU-I)
Number of Countries: 001  Number of Patents: 001
Patent Family:
Patent No     Kind   Date    Applicat No    Kind   Date     Week
JP 8022244     A   19960123  JP 95140991     A   19950501  199613  B
Priority Applications (No Type Date): JP 94161681 A 19940502
Patent Details:
Patent No  Kind Lan Pg   Main IPC    Filing Notes
JP 8022244    A     13 G09B-023/26
Abstract (Basic): JP 8022244 A
        The 3D  molecular  structural  model  has a plastic board shaped
    part provided with a central hole. The board shaped part is made into
    hexagonal or a equilateral triangle structure by suitably shaping.
    Another similar board shaped part is formed and connected to the first
    board shaped part.
```

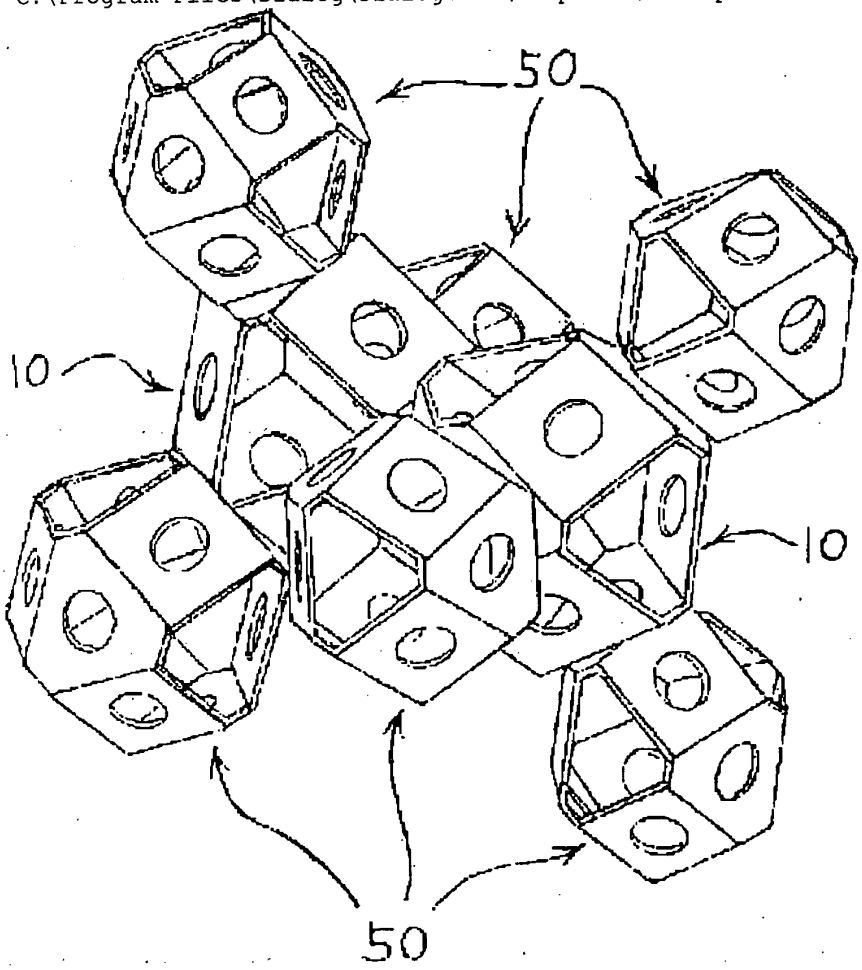
see attached image

17/13/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010628587 **Image available**
WPI Acc No: 1996-125540/199613
XRPX Acc No: N96-105650

3 - dimensional molecular **structural** model **for use in chemical and educational fields - obtains model constituted by hollow polygonal bodies formed by bending and interconnecting end faces of board shape parts together**

C:\Program Files\Dialog\DialogLink\Graphics\3F.bmp



An inclined part is connected to the connection line between the board shaped parts. The end faces of the board shaped parts are bent and interconnected suitably. A **molecular model** is obtained with a resultant hollow polygonal bodies. A number of planes are connected through the central hole.

ADVANTAGE - Simplifies operation and structure.

Dwg.1/21

Derwent Class: P85
International Patent Class (Main): **G09B-023/26**
International Patent Class (Additional): G09B-023/24

17/7/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.
008097272 **Image available**
WPI Acc No: 1989-362384/198949

See attached image

Forming chemical structures atom- molecular models **- using vol. modules whose centres and central axles of connecting rods are marked by X-ray contrast coating**

Patent Assignee: TARTU UNIV (UYTA-R)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
SU 1458884	A	19890215	SU 3725824	A	19840305	198949	B

Priority Applications (No Type Date): SU 3725824 A 19840305
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
SU 1458884	A		4		

Abstract (Basic): SU 1458884 A

The method includes in connecting plastic modules (1) using connecting rods (2), simulating valance forces and correcting two-hedron angles of the connected modules by comparing the model's contour to an image of iso-lines chart of electron density along given cross-section and natural structure. For more accurate construction vol type modules are used and the electron density iso-line charts, modules centres and the central axes of the plastic connecting rods are marked by X-ray contrast substance. The comparison of the contours is performed by sequential . projecting of the model cross-sections onto the corresp. electron density charts using X-ray.

USE/ADVANTAGE - As method for constructing **three - dimensional** models of structures of chemical substances and their further investigation. Improved accuracy. Bul.6/15.2.89

1/9

Derwent Class: J04; P85
International Patent Class (Additional): **G09B-023/26**

17/7/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.
004449330
WPI Acc No: 1985-276208/198544

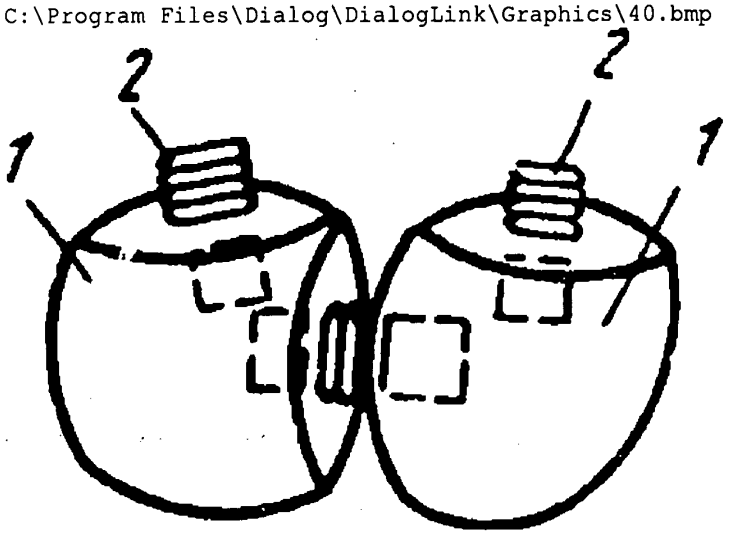
Spatial molecular **structure** model **- of plastic modules simulating atoms and joints with X-ray contrast centres**

Patent Assignee: MIKELSAAR R-K N (MIKE-I); TARTUS UNIV (TART-R); TARTUSA UNIV (UYTA-R)
Inventor: MIKELSAAR R K N

17/13/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.
008097272 **Image available**
WPI Acc No: 1989-362384/198949
XRAM Acc No: C89-160970
XRPX Acc No: N89-275372

Forming chemical structures atom- molecular models **- using vol. modules whose centres and central axles of connecting rods are marked by X-ray contrast coating**

C:\Program Files\Dialog\DialogLink\Graphics\40.bmp



Number of Countries: 010 Number of Patents: 013
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 8504745	A	19851024	WO 84SU21	A	19840412	198544	B
SE 8505300	A	19851108				198604	
DE 3490690	T	19860220	DE 3490690	A	19840418	198609	
FR 2568392	A	19860131	FR 8412078	A	19840730	198611	
NL 8420201	A	19860303				198615	
GB 2167593	A	19860529	GB 8530436	A	19840404	198622	
FI 8504687	A	19851127				198640	
JP 61502145	W	19860925	JP 84502956	A	19840418	198645	
US 4622014	A	19861111	US 85798695	A	19851108	198648	
HU 42647	T	19870728				198733	
GB 2167593	B	19880217	GB 8430436	A	19840418	198807	
CH 665498	A	19880513				198824	
DE 3490690	C	19890615	DE 3490690	A	19860220	198924	

Priority Applications (No Type Date): WO 84SU21 A 19840412; DE 3490690 A 19860220; DE 3490690 A 19840418; FR 8412078 A 19840730; GB 8530436 A 19840404; GB 8430436 A 19840418; JP 84502956 A 19840418; US 85798695 A 19851108
Cited Patents: 1.Jnl.Ref; GB 1149763
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 8504745	A	R	10		

Designated States (National): CH DE FI GB HU JP NL SE US

Abstract (Basic): WO 8504745 A

The **three - dimensional model** of a **molecular** structure uses modules, made of plastic material, each of which simulates one atom. The radius of each module corresponds to the van der Waals radius of the atom and the distance from its centre to the surface corresponds to the covalent radius of the atom. Cylindrical stems with bulges and grooves fit into openings to join the modules and to simulate the chemical bonds. A sphere in the centre and inserts in the stems are made of X-ray contrast material (metal).

ADVANTAGE - Such models are ideal for taking radiographs for a precise determn. of the atomic coordinates and bonds and for a comparison with electronic densitograms.

0/6

Abstract (Equivalent): GB 2167593 B

A **three - dimensional model** of a **molecular** structure, comprising plastic modules each imitating one atom of the **molecular** structure being **modelled** and having a generally cylindrical socket or sockets, adjacent modules being inter-connected by connecting members of a generally cylindrical shape fitted in the sockets of the adjacent modules, each module containing a spherical or part-spherical element located on an extension of the axis of the or each socket of the module, and each connecting member containing an insert extending axially thereof, only the spherical elements and the inserts being made of an X-ray contrast material, in order to produce on an X-ray photograph of the model images representing the centres of the atoms and imitations of the chemical bonds of the **modelled molecular** structure.i

Abstract (Equivalent): US 4622014 A

The model comprises plastics modules imitating each one atom of the **molecular** structure being **modelled** , interconnected by connectors of a cylindrical shape receivable in the sockets of each module. The shape

of the sockets complements the shape of the connector.

Each plastics module has arranged centrally of it an element shaped as a sphere or a part of a sphere. Each connector includes an insert extending axially. The spherically-shaped element and the insert are made of an X-ray contrast material to produce on an X-ray photograph of the model, images of the centres of the plastics modules and representations of the chemical bonds of the **modelled molecular** structure.

USE - A **three - dimensional model** of a **molecular** structure for employment for making X-ray photographs. (4pp)n

Derwent Class: J04; P85
International Patent Class (Additional): **G09B-023/26**

17/7/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.
004122358
WPI Acc No: 1984-267899/198443
Model molecule **- comprises plastics imitation atoms in cyclic connection, each with common point of contact**
Patent Assignee: UNIV TARTU (UYTU-R)
Inventor: MIKELSAAR R K N
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
SE 8403974	A	19841008	SE 843974	A	19840803	198443	B

Priority Applications (No Type Date): WO 82SU36 A 19821224
Abstract (Basic): SE 8403974 A

The **three - dimensional molecule** structure **model** comprises modules (1,2) of plastics, each of which represents an atom, which are connected to one another. The modules imitate atoms in cyclic connection, and each comprises a polyhedron.

Adjacent polyhedra are in contact with each other along their edge surfaces, and have a common point, with the sum of the angles formed by the contacting polyhedra being greater than 360 degrees

Derwent Class: P85
International Patent Class (Additional): **G09B-023/26**

17/7/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.
003860428
WPI Acc No: 1984-005955/198402
Three-dimensional molecular **structure** model **- comprises plastics modules fitted together by corrugated ties fitting into corresponding housings**
Patent Assignee: MIKELSAAR R-KN (MIKE-I); TARTUSA UNIV (UYTA-R); TARTUSK UNIV (UYTA-N); UNIV TARTUS (UYTA-R)
Inventor: MIKELSAAR R K
Number of Countries: 010 Number of Patents: 012
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
BE 897076	A	19831219	BE 897076	A	19830607	198402	B
WO 8401846	A	19840510	WO 82SU35	A	19821224	198420	
FR 2535091	A	19840427				198422	
SE 8403312	A	19840820				198436	
GB 2139399	A	19841107	GB 8414538	A	19820618	198445	

DE 3249605	T	19841213	DE 3249605	A	19821224	198451
JP 59501923	W	19841115				198501
FI 8402426	A	19840614				198519
GB 2139399	B	19860702	GB 8214538	A	19821224	198627
US 4702702	A	19871027	US 86847435	A	19860604	198745
CH 666136	A	19880630				198828
HU 47754	T	19890328				198917

Priority Applications (No Type Date): SU 3500354 A 19821025; SU 3500353 A 19821025
Cited Patents: 1.Jnl.Ref; DE 582559; US 2882617; US 3251260
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
BE 897076	A		6		
WO 8401846	A	R			

Designated States (National): CH DE FI GB HU JP SE US

Abstract (Basic): GB 2139399 A

A **three** - 1dimensional model of **molecular** structure, comprising plastic modules each representing one atom of the molecular structure being simulated, the modules being interlinked by connecting elements fitted in sockets of the modules, whereby a single element interlinks two modules, which are capable of being brought into contact with each other, the said sockets matching the shape of the connecting element, each connecting element being in the form of a cylindrical rod whose entire surface, as well as the mating surface of the sockets of the modules,

has smoothly curved projections alternating with depressions of the same shape so

as to establish a ridge-and-recess joint when the connecting element is fitted in the socket.

BE 897076 A

The **three** - **dimensional** model has plastics modules (1), each representing an atom of the molecular structure. These are connected by assembly parts (2) introduced into housings in each module. The housing shape matches that of the assembly parts, which are basically cylindrical.

The surface of both are corrugated (3,6,4,7), with alternate matching ridges and hollows. The ridges (3) and hollows (4) are made so that their axes are parallel to that of the assembly part. The entry zone (5) of each housing is conical and the model has pivoted hand grips for easy handling.

1/3

Abstract (Equivalent): GB 2139399 B

A **three** - **dimensional** **model** of **molecular** structure, comprising plastic modules each representing one atom of the molecular structure being simulated, the modules being interlinked by connecting elements fitted in sockets of the modules, whereby a single element interlinks two modules, which are capable of being brought into contact with each other, the said sockets matching the shape of the connecting element, each connecting element being in the form of a cylindrical rod whose entire surface, as well as the mating surface of the sockets of the modules, has smoothly curved projections alternating with depressions of the same shape so as to establish a ridge-and-recess joint when the connecting element is fitted in the socket.

Abstract (Equivalent): US 4702702 A

The **three** - **dimensional** **model** of **molecular** structure comprises plastics modules, each representing one atom of the molecular

structing being simulated. These are interlinked through connecting elements fitted in sockets of each module. The sockets are shaped to suit the shape of the connecting element.

Each connecting element includes a cylindrical rod made of a compact plastic. The entire surface, as well as the mating surface of the sockets of each module, is provided with easily curved projections alternating with depressions of the same shape to establish a ridge-and-recess joint and adjoin the modules to each other when the connecting element is fitted in the socket.

USE - **Three dimensional model** of **molecular** structure. (9pp)

Derwent Class: P85
International Patent Class (Additional): B25B-009/04; B25B-027/02; **G09B-023/26**

17/7/6 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

003854514
WPI Acc No: 1984-000039/198401

Modular mouldings to represent molecular structure - shaped for assembling non-planar structure

Patent Assignee: MIKELSAAR R-K N (MIKE-I); UNIV TARTUS (UYTA-R)
Inventor: MIKELSAAR R K N
Number of Countries: 011 Number of Patents: 013
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
BE 897042	A	19831214	BE 897042	A	19830614	198401	B
WO 8402599	A	19840705	WO 82SU36	A	19821224	198428	
FR 2541025	A	19840817	FR 832337	A	19830214	198438	
DE 3249651	T	19850110	DE 3249651	A	19821224	198503	
GB 2143069	A	19850130	GB 8221245	A	19821224	198505	
HU 34091	T	19850128				198511	
JP 60500186	W	19850207	JP 83500379	A	19820617	198512	
FI 8403248	A	19840816				198523	
CS 8300335	A	19850613				198541	
GB 2143069	B	19860508				198619	
CH 665916	A	19880615				198828	
DE 3249651	C	19890330				198913	
US 4812128	A	19890314	US 84638478	A	19840719	198913	

Priority Applications (No Type Date): BE 897042 A 19830614; DE 3249651 A 19821224; FR 832337 A 19830214; GB 8221245 A 19821224; JP 83500379 A 19820617; WO 82SU36 A 19821224
Cited Patents: GB 1125840; US 3841001
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
BE 897042	A		9		
WO 8402599	A	R			

Designated States (National): CH DE FI GB HU JP SE US

Abstract (Basic): BE 897042 A

Modular models of atoms or radicals in specific valency forms for assembling molecular structures include some in which the sum of the angles produced by modules coupled face to face can be greater than 360 deg.

Arrangement allows representation of non-planar structures, including 'boat', 'gauche' or 'chair' formats. The modules typically have plane faces with cavities to be linked by press-fit ties. The

plane faces may be derived from a common apex and may extend to one or more radii. Describes use to construct a model of desoxyribose using modular components with apex angles of 70 or 76 deg.C, to produce structures in which the sum of the included angles is 374 deg to 526 deg. The modules may be moulded from plastics materials.

0/6

Abstract (Equivalent): GB 2143069 B

A **three - dimensional molecular model** comprising plastic modules, each representing one atom of a molecular structure, which are connected to one another, plastic modules intended for imitation of atoms of cyclic compounds are each made as a polyhedron, which are placed within rhe model so that adjacent polyhedrons have their faces touching and a common apex, characterised in that, in order to put together a model of an aplanar cyclic compound of at least three plastic modules, the plastic modules of the model are made so that the sum of the angles formed by adjacent faces of polyhedrons of the modules is more than 360 deg.

Abstract (Equivalent): US 4812128 A

A **three - dimensional molecular model** comprises at least three plastic modules of polyhedral shape connected together to similar atoms of aplanar cyclic compounds. The model uses no more than five constituent elements in each of the molecules formed and adj. plastic modules are arranged with faces touching with a common apex and a sum of angles formed by the faces of total more than 360 degrees. Pref. the model modules are mode of irregular polyhedral shape. Pref. the modules are tetrahedrous with sockets for interconnection to hemispheres on peripheral facets.

USE - For scientific research and instructive purpose presentation of **three - dimensional** structures.

(5pp

Derwent Class: A32; P85

International Patent Class (Additional): C09B-023/26; **G09B-023/26** ; G09B-027/02

17/7/7 (Item 1 from file: 347)

DIALOG(R)File 347:JAPIO

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05066744 **Image available**

THREE - DIMENSIONAL STRUCTURE **MODEL** OF **MOLECULE**

PUB. NO.: 08-022244 [JP 8022244 A]

PUBLISHED: January 23, 1996 (19960123)

INVENTOR(s): MITSUMIZU TAKAMURA

APPLICANT(s): MITSUMIZU TAKAMURA [000000] (An Individual), JP (Japan)

APPL. NO.: 07-140991 [JP 95140991]

FILED: May 01, 1995 (19950501)

ABSTRACT

PURPOSE: To make the spread of electron cloud three-dimensionally appealing to visual sensation like a spaced packing type even different from any type of the spaced pack ing type, a skelton type and a sphere-bar type by assembling specific hollow fourteen- faced polyhedrons, etc., as atom models and connecting a plurality thereof, thereby constituting a **three - dimensional molecular model** .

CONSTITUTION: This **three - dimensional molecular model** is assembled of two pieces of carbon atom models 10 and six pieces of hydrogen atom models 50. The models 10 and the models 50 are the resembling hollow fourteen-faced polyhedrons composed of the plural planes of resembling

hexagonal and square plates. The one side of the planes constituting the models 10, i.e., the respective ridges of the cubes are longer than the models 50 and, therefore, the models 10 are formed larger over the entire part. The hollow fourteen-faced polyhedrons constituting the models 10 have four sheets each of the plane parts of the hexagonal shape. First, the arbitrary plane parts of the hexagonal shape of two pieces of the models 10 are connected by connecting parts. Next, total six pieces of the models 50 are connected to all of the plane parts of the hexagonal shape of remaining three sheets each, by which the assembly is completed. As a result, the molecule form as the spread of a nuclear cloud is expressed and the expression of the coupling angles, coupling lengths, etc., is made possible as well.

17/7/8 (Item 2 from file: 347)
DIALOG(R)File 347:JAPIO
(c) 2003 JPO & JAPIO. All rts. reserv.
03579780 **Image available**
ATOM AND **MOLECULE MODEL**
PUB. NO.: 03-242680 [JP 3242680 A]
PUBLISHED: October 29, 1991 (19911029)
INVENTOR(s): SATO MIYOSHI
APPLICANT(s): SATO MIYOSHI [000000] (An Individual), JP (Japan)
APPL. NO.: 02-040560 [JP 9040560]
FILED: February 21, 1990 (19900221)

ABSTRACT

PURPOSE: To obtain the inexpensive atom and **molecule model** which can be used by all students on a teaching site by three-dimensionally assembling plural sheets of disk plates having slits for coupling to a spherical structure.
CONSTITUTION: The disk plates 3 to 6 consisting of paper, plastic, etc. provided wit the respective slits 1, 2 for coupling are assembled to the **three - dimensional** structure by the respective slits 1, 2 for coupling to form the respective atom models 10, 11. Further, the respective atom models are freely attachably and detachably combined with the prescribed other atom models 10, 11, by the slits 1, 2 for coupling at need, by which the **molecule model** 15 is formed.

19/7,K/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013855240 **Image available**
WPI Acc No: 2001-339453/200136
Molecular **structure** model **for skeleton structure has plate-shaped portions with different external appearance based on kind of atom, ion or group on vertex and coupling kind on intersection and ridge lines**
Patent Assignee: ISHIHARA S (ISHI-I)
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
JP 2001092349	A	20010406	JP 99269728	A	19990924	200136	B

Priority Applications (No Type Date): JP 99269728 A 19990924
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 2001092349	A		7	G09B-023/26	

Abstract (Basic): JP 2001092349 A

NOVELTY - The plate-shape portions (B1-B6) of a skeleton structure showing a molecular structure without a symmetrical mirror surface, has different external appearance according to the kind of the atom, ion or group shown on the vertex and the kind of coupling on the intersection line and ridge line.

DETAILED DESCRIPTION - The central point (CT) and the part of each vertex (P1-P4) express the position of an atom, ion or group. The vertex part in an intersection line and a ridge line shows the coupling between the atoms, ions or groups.

USE - For skeleton structure.

ADVANTAGE - Enables showing difference of array mode of atom or ion or group according to external appearance that is different between plate-shape portions.

DESCRIPTION OF DRAWING(S) - The figure shows the chemical constitution formula showing the structure of **amino acid** , and the isometric views showing the external appearance of **molecular** structure **model** .

Plate-shape portions (B1-B6)
Central point (CT)
Vertices (P1-P4)
pp; 7 DwgNo 1/4

Derwent Class: P85
International Patent Class (Main): **G09B-023/26**

11/6/1 (Item 1 from file: 348)
01169365
SYSTEM WHICH CAN REVERSIBLY REPRODUCE ITSELF

11/6/2 (Item 2 from file: 348)
01168463
SIMULATION OF CHEMICAL INTERACTIONS

11/6/3 (Item 3 from file: 348)
00167720
Tetrahedral codon stereo-table.

11/6/4 (Item 1 from file: 349)
00565134 **Image available**
SYSTEM WHICH CAN REVERSIBLY REPRODUCE ITSELF

11/6/5 (Item 2 from file: 349)
00565133 **Image available**
SIMULATION OF CHEMICAL INTERACTIONS

11/13,AB/6 (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00543793 **Image available**
DYNAMIC MODEL OF THE DNA MOLECULE
MODELE DYNAMIQUE DE LA MODULE D'ADN
Patent Applicant/Assignee:
LANGMUIR David B,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200007166 A1 20000210 (WO 0007166)
Application: WO 99US16827 19990723 (PCT/WO US9916827)
Priority Application: US 9894146 19980725; US 99320432 19990526
Designated States: AU CA IL JP KR MX AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Publication Language: English
Fulltext Word Count: 6191
English Abstract
The invention is a dynamic model (5) of the DNA molecule. The invention includes a multiplicity of physical representations of the four nucleotides (10, 15, 20, and 25). Each physical representation is comprised of a T-shaped member (1) having an elongate body (6) attached to a flexible planar member (30). The invention also includes a first joint (14), located at an end of the elongate bodies which physically represent the Adenine base (10) and the Thymine base (20), for attaching the Adenine base (10) to the Thymine base (20), wherein the joint (14) is rotatable. The invention further includes a second joint (18) located at an end of the elongate bodies which physically represent the Guanine base (25) and the Cytosine base (15), for attaching the Guanine base (25) to the Cytosine base (15), wherein the joint (18) is rotatable.

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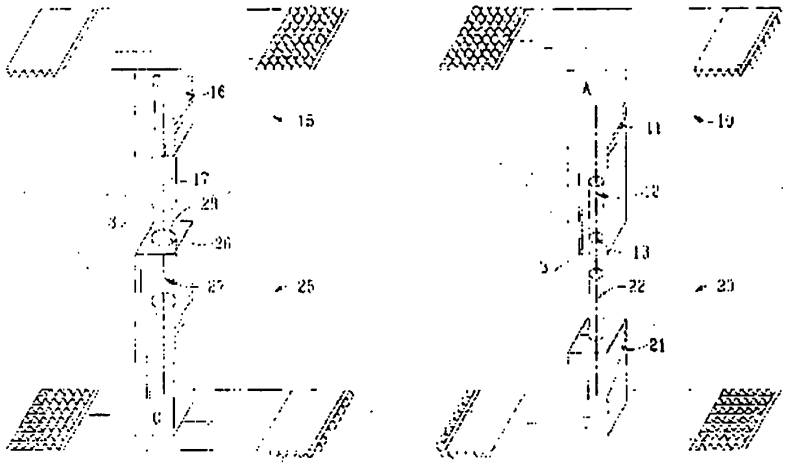
see attached image


16
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File 348:EUROPEAN PATENTS 1978-2003/Jul W02
File 349:PCT FULLTEXT 1979-2002/UB=20030717,UT=20030710

Set	Items	Description
S1	4849	MOLECUL?(3N)MODEL????
S2	121371	TEACH??? OR EDUCAT? OR LEARN???
S3	114557	AMINO()ACID? ?
S4	1599764	3
S5	616209	THREE
S6	1763551	D
S7	132357	DIMENSIONAL
S8	45212	3D
S9	266113	PHYSICAL
S10	20	IC=G09B-023/26
S11	**6**	**S3 AND S10**
S12	154725	S4:S5()S6:S7 OR S8
S13	70	S9(S)S12(S)S1
S14	0	S10 AND S13
S15	0	S9(10W)S1(S)S12(10W)S1
S16	21	S9(10W)S1
S17	248	S12(10W)S1
S18	0	S16 AND D17
S19	**2**	**S16 AND S17**
S20	**14**	**S10 NOT S11**

19/6/1 (Item 1 from file: 349)
00331566
PERIPHERAL NERVOUS SYSTEM SPECIFIC SODIUM CHANNELS, DNA ENCODING THEREFOR, CRYSTALLIZATION, X-RAY DIFFRACTION, COMPUTER MOLECULAR MODELING, RATIONAL DRUG DESIGN, DRUG SCREENING, AND METHODS OF MAKING AND USING THEREOF

19/6/2 (Item 2 from file: 349)
00248447
METHOD AND APPARATUS FOR DESIGNING MOLECULAR STRUCTURES USING AN ANALYTICAL SOLUTION FOR THE EFFECTIVE BORN RADII

20/6/3 (Item 3 from file: 348)
01026889
BLOCK

20/6/4 (Item 4 from file: 348)
00890258
SET OF PIECES FOR FORMING A RECREATIONAL, EDUCATIONAL OR DECORATIVE ASSEMBLY OF SPHERICAL ELEMENTS

20/6/5 (Item 5 from file: 348)
00328105
BUILDING BLOCKS.

20/6/6 (Item 6 from file: 348)
00148075
Mechanical support module for nucleic acid.

20/6/10 (Item 2 from file: 349)
00474310 **Image available**
BLOCK

20/3,AB/2 (Item 2 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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01135162
DYNAMIC MODEL OF THE DNA MOLECULE
MODELE DYNAMIQUE DE LA MODULE D'ADN
PATENT ASSIGNEE:
Langmuir, David, (2950530), 350 21st Street, Santa Monica, CA 90402, (US)
, (Applicant designated States: all)
INVENTOR:
The designation of the inventor has not yet been filed
PATENT (CC, No, Kind, Date):
WO 200007166 000210
APPLICATION (CC, No, Date): EP 99935907 990723; WO 99US16827 990723
PRIORITY (CC, No, Date): US 94146 P 980725; US 320432 990526
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE
INTERNATIONAL PATENT CLASS: **G09B-023/26**
LANGUAGE (Publication,Procedural,Application): English; English; English

20/3,AB/7 (Item 7 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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00081374
Molecular models.
Molekularmodelle.
Modeles moleculaires.
PATENT ASSIGNEE:
MERCK & CO. INC., (200479), 126, East Lincoln Avenue P.O. Box 2000, Rahway New Jersey 07065, (US), (applicant designated states: CH;DE;FR;GB;LI)
INVENTOR:
Smith, Graham M., 2338 Belvedere Drive, Scotch Plains New Jersey 07076, (US)
LEGAL REPRESENTATIVE:
Crampton, Keith John Allen et al , D YOUNG & CO 10 Staple Inn, London WC1V 7RD, (GB)
PATENT (CC, No, Kind, Date): EP 85262 A1 830810 (Basic)
EP 85262 B1 860402
APPLICATION (CC, No, Date): EP 82307038 821222;
PRIORITY (CC, No, Date): US 334196 811224
DESIGNATED STATES: CH; DE; FR; GB; LI
INTERNATIONAL PATENT CLASS: **G09B-023/26** ; G06F-015/20
ABSTRACT EP 85262 A1
Molecular models.
A molecular model (2-6) of a relatively large molecule or a portion thereof is made up of a series of solid parallel and equidistant cross sections of rigid transparent plastics sheets (2-2,2-7,2-8,2-9) representing space occupied by the atoms in the crystalline state. The adjacent cross sections are generated from x-ray crystal spectroscopic data providing crystal coordinates of the large molecules in computer readable form. Computer tapes of such data are used to print out numbered cross sections of the molecule showing coordinate plots of atoms intersecting such cross sections along a preselected axis. These cross sections are duplicated manually in clear rigid plastics sheets and assembled in order using appropriate spacer blocks (2-1) to maintain

accurate spacing of the adjacent cross section.
ABSTRACT WORD COUNT: 126
LANGUAGE (Publication,Procedural,Application): English; English; English

20/3,AB/8 (Item 8 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
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00030704
Molecular model for chemistry.
Molekulmodell fur die Chemie.
Modele moleculaire pour la chimie.
PATENT ASSIGNEE:
TACOMA PRODUCTS, INC., 181, South Thomas Road, Tallmadge Ohio 44278, (US)
, (applicant designated states: DE;FR;GB;IT;NL;SE)
INVENTOR:
Darling, Stephen D., 3010 Oakridge Drive, Silver Lake Ohio, 44224, (US)
Jendrisak, Aloysius A., 2996 Oakridge Drive, Silver Lake Ohio 4424, (US)
Bokmiller, David J., 1594A Treetop Trail, Akron Ohio 44313, (US)
LEGAL REPRESENTATIVE:
Slight, Geoffrey Charles et al , Graham Watt & Co. Riverhead, Sevenoaks
Kent TN13 2BN, (GB)
PATENT (CC, No, Kind, Date): EP 32040 A1 810715 (Basic)
EP 32040 B1 850320
APPLICATION (CC, No, Date): EP 80304665 801222;
PRIORITY (CC, No, Date): US 110363 800108
DESIGNATED STATES: DE; FR; GB; IT; NL; SE
INTERNATIONAL PATENT CLASS: **G09B-023/26**
ABSTRACT EP 32040 A1
Molecular model for chemistry.
Molecular model building members for the formation of models of molecules and compounds primarily in the field of organic chemistry. Model building members (10, 60) are dimensionally accurate, can be interconnected and/or interlocked, when they are rotatable about their axes, and can thus be used to form specific molecular models. Model building members depicting a double molecular bond (80) and a triple molecular bond (90) can be interconnected and/or interlocked with the model building members (10, 60). All of the aforementioned model building members (10, 60, 80 and 90) are formed from a polypropylene copolymer material resulting in the members being inherently flexible while retaining sufficient rigidity to depict strain in molecular bonding. Because of this flexibility, the rotatability of the members, and the manner in which the members can be interconnected and/or interlocked, models of all known molecules and compounds in the field of organic chemistry can be formed.
ABSTRACT WORD COUNT: 156
LANGUAGE (Publication,Procedural,Application): English; English; English

20/3,AB/11 (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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00171898
MANIPULATABLE, SPHERICAL EDUCATIONAL AND AMUSEMENT DEVICES
DISPOSITIFS SPHERIQUES MANIPULABLES EDUCATIFS ET LUDIQUES
Patent Applicant/Assignee:
WILK Howard J,
Inventor(s):
WILK Howard J,

Patent and Priority Information (Country, Number, Date):
  Patent: WO 9005351 A1 19900517
  Application: WO 89US4930 19891102 (PCT/WO US8904930)
  Priority Application: US 88215 19881104
Designated States: AT BE CH DE FR GB IT JP LU NL SE
Publication Language: English
Fulltext Word Count: 9670
English Abstract

A device for use as a molecular model or manipulable puzzle includes at least two concentric spheres rotatable with respect to one another and a plurality of at least six inserts extending radially through the concentric spheres. Each of the spheres has at least two great circle channels crossing one another, preferably perpendicularly, each great circle channel receiving at least one and preferably four of eight inserts. The outer spheres are formed by separate, approximately quarter sphere, curved segments which are held together by the inserts. The concentric spheres can be made to rotate with respect to one another by movement of the inserts. In the preferred embodiments, eight inserts are arrangable in cubic orientations forming two sets of four, tetrahedrally-oriented inserts. Three inserts of each set can be manipulated from a tetrahedral orientation with respect to the fourth insert of the set to a tetrahedral orientation with respect to an insert of the other set diametrically opposed to the fourth insert. Unique indicia on the surface of the outer sphere and on cover member portions of the inserts can be used to provide a manipulable puzzle.

20/3,AB/12 (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00126489
THREE-DIMENSIONAL MODEL OF MOLECULAR STRUCTURE
MODELE TRIDIMENSIONNEL DE STRUCTURES MOLECULAIRES
Patent Applicant/Assignee:
  TARTUSKY GOSUDARSTVENNY UNIVERSITET,
  MIKELSAAR Raik-Khiio Neemeevich,
Inventor(s):
  MIKELSAAR Raik-Khiio Neemeevich,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 8504745 A1 19851024
  Application: WO 84SU21 19840412 (PCT/WO SU8400021)
  Priority Application: WO 84SU21 19840412
Designated States: CH DE FI GB HU JP NL SE US
Publication Language: Russian
English Abstract

A three-dimensional model of molecular structure comprises plastic modules (1) interconnected by means of connecting elements(2). Each module (1) contains in its centre an element (6) made of a roentgen contrast material whereas an insertion (7) made also of a roentgen contrast material is placed along the longitudinal axis of each connecting element (2).

20/3,AB/13 (Item 5 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00119350
TRIDIMENSIONAL MODEL OF MOLECULAR STRUCTURE
MODELE TRIDIMENSIONNEL D'UNE STRUCTURE MOLECULAIRE
Patent Applicant/Assignee:

TARTUSKY GOSUDARSTVENNY UNIVERSITET,
MIKELSAAR Raik-Khiio Neemeevich,
Inventor(s):
MIKELSAAR Raik-Khiio Neemeevich,
Patent and Priority Information (Country, Number, Date):
Patent: WO 8402599 A1 19840705
Application: WO 82SU36 19821224 (PCT/WO SU8200036)
Priority Application: WO 82SU36 19821224
Designated States: CH DE FI GB HU JP SE US
Publication Language: Russian
English Abstract

The tridimensional model of a molecular structure comprises plastic modules (1, 2), which are interconnected, and each of them imitates one atom. The modules (1, 2), which are intended for the imitation of atoms in cyclic compounds, are polyhedrons, and are so arranged in the model that adjacent polyhedrons are joined together by their faces and have a common vertex. The sum of the angles, which are made by adjoined faces of the polyhedrons of the modules (1, 2), exceeds 360o.

20/3,AB/14 (Item 6 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00118603
TRIDIMENSIONAL MODEL OF MOLECULAR STRUCTURE AND ACCESSORY FOR ITS MOUNTING AND DISMOUNTING
MODELE TRIDIMENSIONNEL D'UNE STRUCTURE MOLECULAIRE ET ACCESSOIRE POUR SON MONTAGE ET DEMONTAGE
Patent Applicant/Assignee:
TARTUSKY GOSUDARSTVENNY UNIVERSITET,
MIKELSAAR Raik-Khiio Neemeevich,
Inventor(s):
MIKELSAAR Raik-Khiio Neemeevich,
Patent and Priority Information (Country, Number, Date):
Patent: WO 8401846 A1 19840510
Application: WO 82SU35 19821224 (PCT/WO SU8200035)
Priority Application: SU 350035328 19821025; SU 350035428 19821025
Designated States: CH DE FI GB HU JP SE US
Publication Language: Russian
English Abstract

The tridimensional model of a molecular structure comprises plastic modules (1) which are affixed with elements, i.e. cylindrical rods (2). On the whole surface of the rods as well as on the appropriate surface of sockets (5), provided on the modules (1), ribs (3, 6) of smooth shape are formed so that they alternate with grooves (4, 7) having the same shape. For mounting an dismounting the model an accessory is used, of which jaws (15) are bent and provided with enlarged portions (16) in order to grip the module (1). On the inner surface of the jaws (15) wedge-shaped projections (17) are provided in order to simplify the dismounting of the model.

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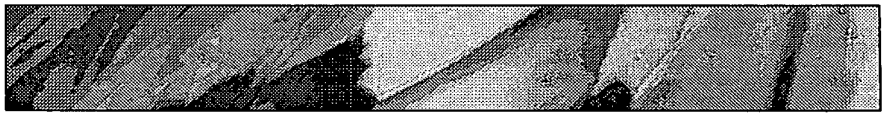

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Linaras, C.E. / Singh, K. / Kristol, D. / Ritter, A.B., *Journal of Molecular Structure: THEOCHEM*, Feb 1998
The role of electrostatic interactions in the steering of acetylcholine to the active site of acetylcholinesterase is investigated in this study. The results obtained suggest that acetylcholinesterase's catalytic processes involve more...
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Groth, G. / Walker, J.E., *FEBS Letters*, Jun 1997
A model is described of a dodecameric complex consisting of the integral membrane component subunit c of the H^+-transporting F"o domain of Escherichia coli F-ATPase. A high-resolution partial structure of monomeric subunit c resulting...
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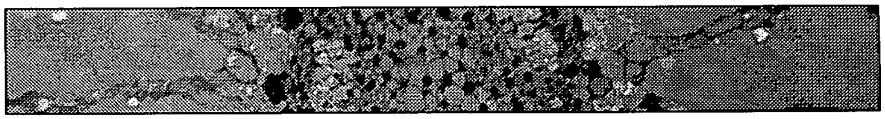

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☐ **1.** A molecular model of myoglobin constructed for use as a teaching aid.
W E Keefe / D B Howe, *J Chem Educ*, Sep 1973
No Abstract Available
MEDLINE Citation on BioMedNet MEDLINE

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... ME) Center for Biomolecular Modeling Dr. Tim **Herman** Director Dr. Michael **Patrick** Co-Director Robyn ... Dr. Fritz DeVries Dr. Larry Fennigkoh Vito **Gervasi** Dr. Tim ...
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208. : US Pat Appl 20020076682 Molecular models
... Inventors: **Herman**, Timothy M.; (Wauwatosa, WI) ; **Patrick**, Michael H.; (Pine River, WI) ; **Gervasi**, Vito R.; (New Berlin, WI) ; **Vikberg**, Gunnar; (Rio ...
home.att.net/~rppat/ap03a/ap3a_208.htm - 6k - Cached - Similar pages

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MolySym News
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[PDF]Add'l Patents Pending
File Format: PDF/Adobe Acrobat - View as HTML
... Our first product, LuxMol, allows the user to assemble a **physical molecular model** in an atom-by-atom fashion that is wirelessly interfaced with real-time ...
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File Format: Microsoft Word 2000 - View as HTML
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course1.winona.edu/chemistry/tnalli/fall01/ expt3%20chem3D%20instruct.doc - Similar pages

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